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Special report to management

October 11, 1965
RAILWAY AGE WEEKLY

budget '66 planning

IN '64 AND IN '65 RAILROADS SET ALL-TIME HIGHS IN CAPITAL SPENDING. WILL THEY DO IT AGAIN NEXT YEAR? MAYBE, MAYBE NOT -- BUT THE TOTAL SHOULD STILL BE IN THE $1.5-BILLION RANGE.

p. 18

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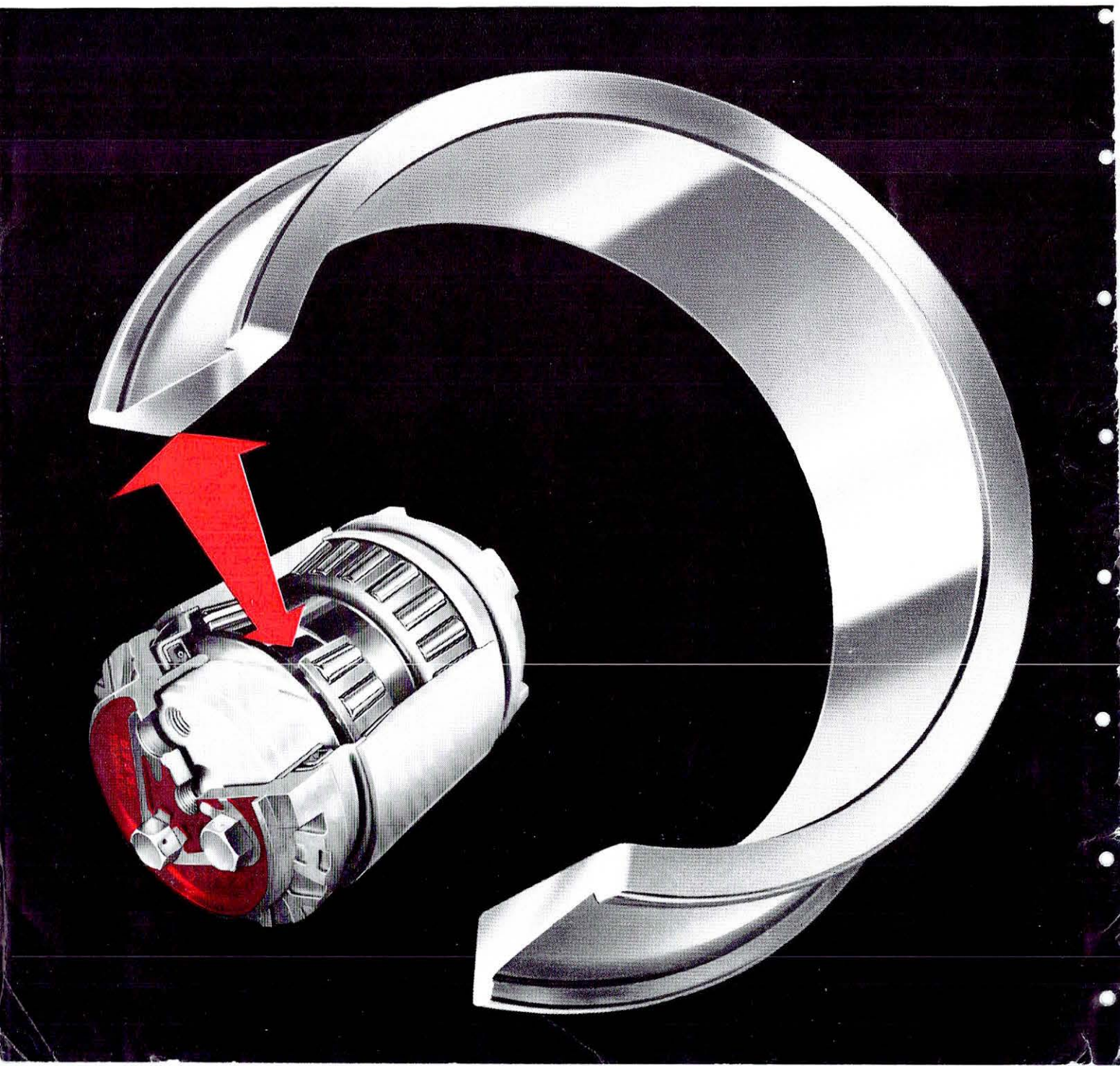

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RAILWAY AGE WEEK AT A GLANCE

October 11, 1965 • Vol. 159, No. 14

BUDGET PLANNING '66

Another record year for capital spending?

Railroad capital outlays will be in the $1.5-billion range in '66, may even top 1965's $1.6-billion p.18

Freight cars: Buying is more than paying

In terms of long-range profitability, "What to buy" is more important than "How to pay" p.20

Diesels: Power and speed

The horsepower race is warming up. Buyers will have 14 new models to choose from next year p.24

Track equipment: Preparing a shopping list

Decisions on new M/W machines are influenced by factors which vary from road to road p.27

S&C: Key word is 'urgency'

Fast-moving developments in computerization call for immediate long-range planning p.39

The Action Page—Needed: An 'era of good feelings'

A spirit of cooperation among all interests can help insure continued railroad modernization p.90

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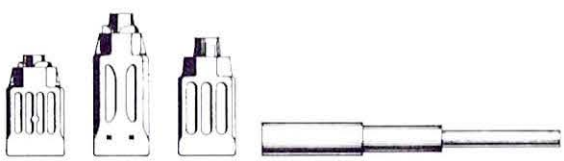

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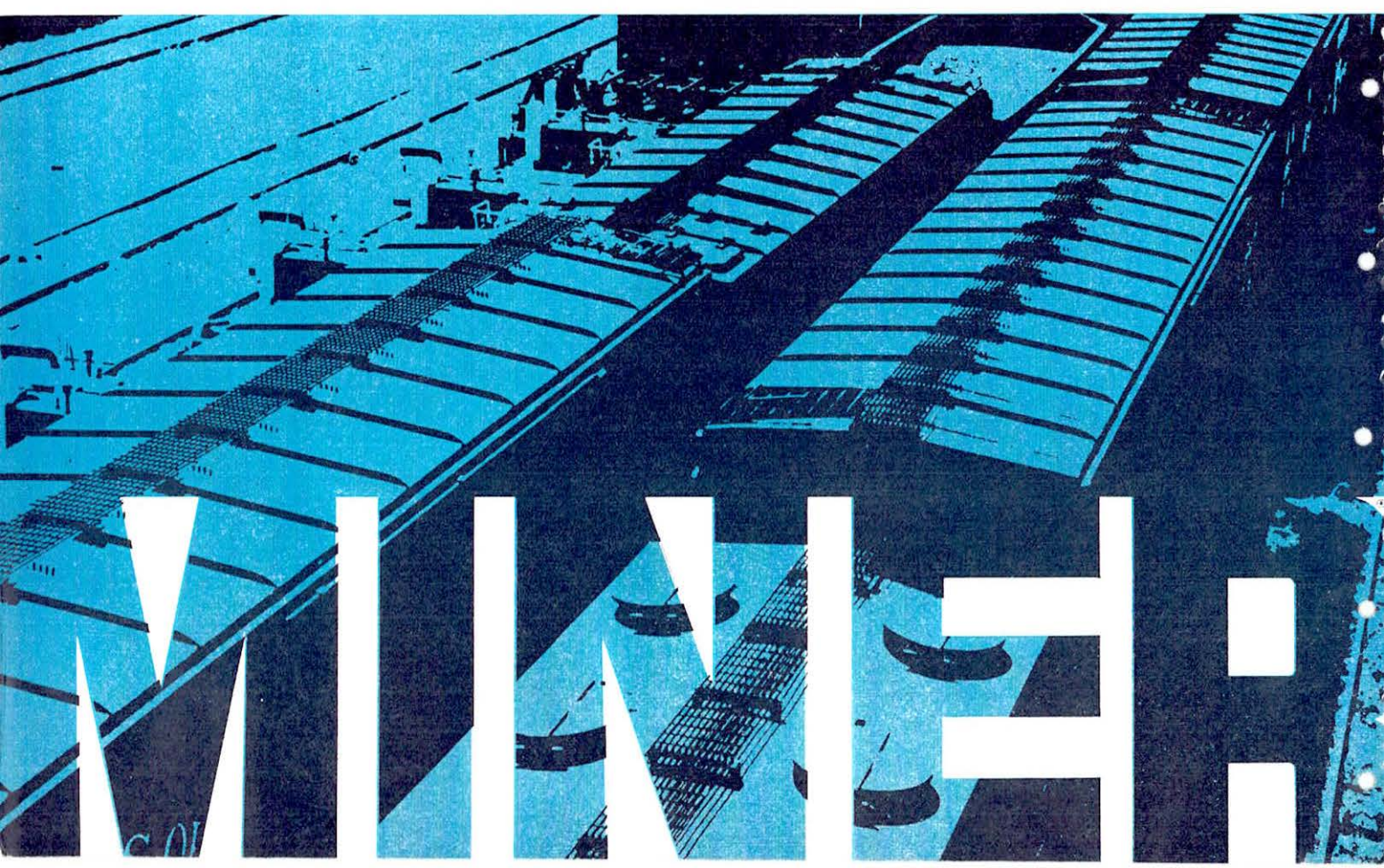

SHORT AND SIGNIFICANT

New Haven aim: Drop interstate trains

Interstate passenger train service on the New Haven will cease March 1, 1966, if the voluminously documented discontinuance plan the road plans to file Oct. 11 is acceptable to the Interstate Commerce Commission. The long-expected move to eliminate the road's through passenger trains (RA, April 26, p. 10) specifically exempts all service now operating under special temporary agreements between the line and the states it serves until expiration dates of the contracts.

States will be asked for other train-offs

While New Haven's notice (posted last Thursday in trains and stations) lists 274 trains that will be discontinued if the ICC permits, the road will also petition state regulatory agencies for permission to cease operating a limited number of trains in intra-state service. The road also announced that "all other passenger train operations are now or will be the subject of appropriate discontinuance petitions."

●

From C&NW: New chance for RI's stockholders?

Chicago & North Western refuses to surrender in its fight to get control of Rock Island. C&NW's newest move: Application to the ICC for authority to make its existing exchange offer available to RI stockholders through issuance of C&NW certificates of deposit for Union Pacific certificates of deposit which RI holders have already accepted. Under the new proposal, Rock Island shareholders who have accepted UP certificates would get what C&NW terms a new and distinct set of rights under the North Western exchange offer in addition to those they now hold under the UP offer. Holders of a great majority of RI shares have taken the UP offer—but, says North Western Chairman Ben W. Heineman, it would now benefit them to go C&NW: "It would enable them to accept North Western's original exchange offer; it could commit North Western irrevocably to the terms of that offer, and it would also permit Rock Island shareholders to retain all rights now held under Union Pacific's exchange offer."

●

L&N's back in business

First trains since Hurricane Betsy hit the Gulf Coast operated between New Orleans and Mobile over Louisville & Nashville Sept. 30—just 21 days after the winds and tides ripped out about 33 miles of line east of the Louisiana port city. Passenger service was resumed Oct. 8. Said Vice President and General Manager C. S. Sanderson: "We're extremely proud that our construction forces were able to make such rapid progress against such overwhelming odds." And so what happened as service was resumed? Torrential rains, an aftermath of tropical storm Debbie, hit Mobile and caused some flooding. But L&N, back in business after spending $3 million in Betsy's wake, shrugged off Debbie's attack and kept operating.

●

'Take-your-auto' service is a success

A Chesapeake & Ohio-Baltimore & Ohio experiment—rack-car movement of patron's automobiles on passenger trains—made friends, if not money, this past summer. And, say C&O and B&O, the Chicago-Washington service will be resumed next July. During the July-September period this year, the two roads carried 91 passengers' cars, with an average of 2.5 passengers per auto. Ticket sales totaled 230, gross revenues added up to about $12,000. The conclusion of Paul H. Reistrup, director of passenger service: "We didn't make any great amount of money on the service, but we think it was well worthwhile."

MONDAY MORNING REPORT

Personnel problems—at the college level

Quite a bit has been said (and written) lately about railroad efforts to recruit future-officer material—and most of the comment has been somewhat less than hopeful. Railroads, to put it bluntly, do not seem to be getting the so-called bright young men in the numbers that they'd like to have or that they're likely to need not many years from now.

Reasons—and reasons—to explain the 'why not'

Nobody contends that a college degree is an absolute prerequisite, even today, for a satisfying or rewarding or valuable career in railroading or in any other field. In other words, not all drop-outs become failures—not by any means. But the point is that railroads do require a sizeable inflow of people with a higher formal education, and they're not really getting it in the needed quantity. The railroad "image" often gets blamed for the apparent lack of enthusiasm among young people for railroad careers. But all the talk about image may obscure the real issue—which, some argue, is simply that railroads don't generally offer the starting or continuing incentives that other fields do.

Age is a virtue

Railroading, in both contract and excepted positions, is a field largely governed by seniority. Experience, in railroading, is widely regarded as the best teacher. A young man coming into the industry may get the impression that—barring a miracle, minor or otherwise—he faces a long and pretty slow climb to a spot of real authority and recognition. His advancement, in many cases, doesn't depend so much on what he is or does as on what the men senior to him do. The pity is that, so often, good men rise to the top at an age where they have only a few creative years to give before retirement.

Experience is fine, but can youth wait?

It's true—or at least it appears to be true—that younger men are moving into top-management ranks just a bit faster these days. This could stem from a recognition of talent that permits a certain leapfrogging of the seniority system. But other factors, less complimentary to the industry's appreciation of ability, may also be involved. And there still exists a real question as to whether there are any practical shortcuts around experience—as measured in years—in railroading. If there are, fine. If there aren't, then railroads may have to settle down to a realization that they're going to rank fairly low on the list of industries that get the most of the best of the bright young men.

Disadvantage today—can it be turned to advantage?

It's partly a matter of economics. Today, it's not unusual for a youngster to come out of a university and start to work for more money than his dad makes after 35 or 40 years' experience. This may or may not be a bad thing. But, good or bad, it happens to be a fact of life. Given usual trainee programs and seniority-based promotion routes in railroading, railroad recruiters walk onto college and university campuses with a considerable disadvantage—when you consider, for example, that in trying to attract young engineers they're competing against public utilities, computer manufacturers, petroleum companies, the aerospace industry. Personnel men tend to worry about these things. Either now or later, top management—and directors and stockholders—may also have to shoulder the worries. The problem—how do you get good men, train them and keep them—is a big one. It's not going to get any smaller.

...but can you afford it?

You don't have to remember back 40 years to recall signal systems like this. Hundreds of similar machines, designed according to the knowledge and the needs of a bygone era, are still "in service." They look like prime examples of good economy—like getting your money's worth out of equipment that was built to last for many years.

In most cases, however, the owners of these old timers have long since been paying for modern systems—without getting the efficiency that today's railroading demands. Paying in costly man-hours, both operating and maintenance. Paying in poor train operation, hampered by delay and lack of effective, centralized control.

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RAILWAY AGE WEEKLY

OCTOBER 11, 1965

New outlook in marketing

Experience is proving one thing: Success for the concept depends on a grasp of a host of complexities.

Marketing costs money—but railroads are finding that the absence of a soundly based marketing program can be vastly more expensive over the long haul.

Making marketing work, however, can be a complicated job—one involving all sorts of inter-relationships and affecting virtually every department on a railroad. It was to study these interrelationships that the Railway Systems & Management Association staged a broad-gauge marketing conference in Chicago last week. By the time the two-day affair broke up, participants had worked around to a number of answers to marketing problems—but they also came up with a good crop of new questions.

● **Shaping an equipment program.** Not surprisingly, a good part of the discussion centered on equipment—and on the multitude of decisions that go into the shaping of an equipment program.

Northern Pacific Vice President E. M. Stevenson looked at the problem from both the shipper and the carrier viewpoint—the causes behind new-equipment demand and the results that acquisition of new types of cars can produce.

Shipper proposals, Stevenson pointed out, generally cover one or more of about five desired conditions: Lower loading or unloading costs, improved in-transit protection, provision of faster service, ability to load in larger units and, of course, a reduction in freight rates.

And as for the railroad: "Its interests are not dissimilar, but are, perhaps, a bit more specific." High on the carrier's interest-list, NP's vice president noted, are a desire to provide equipment best suited for the shipper's particular need—and a desire, at the same time, to get certain operating benefits. Reduction in operating and maintenance costs and in loss-and-damage claims are common goals—but so are the operating efficiencies which new equipment may be able to produce through lower turn-around time, more favorable ratio of car weight to payload and versatility of use.

● **The traffic-pattern factor.** First step in preparing a car-acquisition recommendation, Stevenson continued, "is an evaluation of your over-all traffic pattern. Shortages are most apt to be in conventional or all-purpose equipment such as box cars, flat cars and gondolas—but we always seem to be faced with some demands for specialized equipment, and this specialized equipment often has characteristics which dictate the acquisition date."

Sometimes, the NP officer said, "our special-equipment needs become so apparent that we can set up a schedule of gradual acquisition rather than resort to a crash-type program. For example—for several years, it has become growingly apparent that ultimately, regular grain movements will be in large covered hopper cars, and box cars will be called into grain service only during harvest times or at other peak-movement times. However, this transition will not be an immediate one, and each year we are increasing our ownership of 100-ton trough-hatch covered hoppers so as to eventually meet the situation."

● **Incentive—for whom?** After reviewing this interplay of shipper and carrier equipment study and programming, Stevenson came on with a few notes of caution on rate adjustments:

"As soon as larger cars are put in service, pressure is generally exerted for reduced rates. However, if the railroads cannot retain a substantial portion of the increased earnings provided through the use of new, improved equipment, there is less incentive for us to change our methods of handling.

"Furthermore, this is one of the few areas available to the carriers for improvements in efficiency in order to overcome increases in wage rates and material costs.

"Of course, there are cases where movements have been lost or are in jeopardy and incentive rates and larger minimums are required to recapture or retain traffic.

"It is about time that the railroads let it be known that larger equipment often brings with it definite problems for the carrier. These include much greater investment, probable increases in equipment maintenance costs, often a lessening of our ability to find return loads and the possibility of increased track-maintenance costs."

With all the pressure being generated for special-design freight cars, sometimes the need for work-horse equipment can be overlooked—but, said Stevenson, it shouldn't be: "The house-type car, the open-top hopper car, the gondola and the flat car, which are usually ordered in large quantities, should be frequently included in annual programs on all railroads. These are the bread-and-butter units, and they are being retired in considerable numbers each year. It would seem to me that the minimum any railroad can do, in fairness to our industry, is to replace the carrying capacity of its conventional cars as they are retired. With the increased incentive under graduated per-diem rates, I would hope that those carriers which are financially able to do so would go beyond this minimum."

● **As builders see it.** The carbuilders' slant on the equipment situation—one which also covered the customer's stake in improved technology—came from J. W. Bergen, Pullman-Standard's

vice president-marketing.

Bergen noted the rapidly changing demands for new types of special cars over the past decade or so—with the observation that "a majority of commercial carbuilders' sales are now coming from products that did not exist just six years ago. We do not have a design in our research and development laboratories that won't save the shipper or the receiver money while enabling our railroad customers to reach out and obtain a larger share of freight tonnage.

"Our emphasis now is on products that are readily adaptable, through innovation, to modern material-handling concepts rather than contract freight-carbuilding. . . .

"The building of standard cars that may be customized by the addition of various components and optional features, is essential in this age of specialization."

● **'Planned obsolescence.'** Bergen also touched on what can be a touchy subject—the matter of planned obsolescence. There are, he said, "several ramifications to planned obsolescence that should be considered. Basically, by providing new and improved forms of equipment, we aid the railroads in holding onto the business they have at present and also help them recapture business they have lost to other forms of transportation.

"The covered hopper car is a good example of product development carried out jointly by carbuilders and the railroads to meet shipper demands. Covered hoppers were once known as cement cars and carried only 2,000 cubic feet of lading. Today, they are equipped to handle almost any type of bulk product, including foodstuffs and chemicals. Four - thousand - cubic - foot capacity is now commonplace, and the industry already has some cars of 4,500- to more than 5,000-cubic-foot capacity."

How about tomorrow?

Bergen then looked at the future and concluded:

—Rail ton-miles, "which in the last analysis is a measure of car needs, are headed upward."

—Cubic and load capacities of cars are increasing to handle this ton-mile demand.

—Along with higher capacities, "greatly improved utilization of equipment through improved operating techniques is a certainty."

—Technological innovations will continue, and probably at an accelerating pace.

—Demands of various large industries "will surely increase the number of special and assigned cars."

What does all of this mean, in terms of tomorrow's freight-car fleet? Said Bergen: "Our evaluation of these factors—some of which suggest more cars and some fewer—is that our present and future market will consist of somewhat fewer total cars. However, these cars will be larger and in all probability more sophisticated than ever before. This means they will be more expensive. We are sure, however, that this added expense will be more than returned to the buyers through new business, fewer claims, better utilization and happier customers."

What, then, is the carbuilder's approach to changing equipment needs? As Bergen put it, "we are attempting, through market research and long-range forecasting, to discern growth patterns in major industries served by the railroads. We are trying to forecast the railroads' share of increased tonnages and relate improved car utilization to numbers and types of cars that will be needed.

"Through direct rail and shipper contact, we are trying to sort out some basic standards from alternative features which specific shippers or industries require. We then hope to be able to design basic standards which will minimize engineering charges, reduce tooling costs, cut changeover time from lot to lot and provide a sound basis for variations."

● **'Exciting days lie ahead.'** In addition to the emphasis on equipment, the RSMA conferees explored a variety of other marketing problems—including pricing decisions, changes in industry distribution patterns, share-of-the-market determinations, intermodal cooperation and even the outlook for small-shipment traffic.

In effect, Jack E. Gilliland, chairman and president of Frisco, summed up what was to come in his keynote comments:

"Our best days and most exciting days lie ahead. When the over-all performance of the rails was rather lackluster years ago, it wasn't that improvements were lacking or that the capacity to render an increasingly competitive service was absent. I believe we simply coasted too much on past accomplishments and failed to tell our story to the public consistently and convincingly. As a consequence, our young competitors succeeded in whacking us behind the ears But that's behind us, once and for all. We've got a superior product and service, and we're letting people know it, with imagination, with honesty and with tremendous determination. Marketing is an indispensable part of this invigorating climate—and to maintaining it in the future." ■

Automation prospects brighten

So far as labor agreements are concerned, railroads are in a "favorable position . . . to move ahead with automation"—but at the same time, there should be no relaxation of the industry's state-of-preparedness for future bargaining situations.

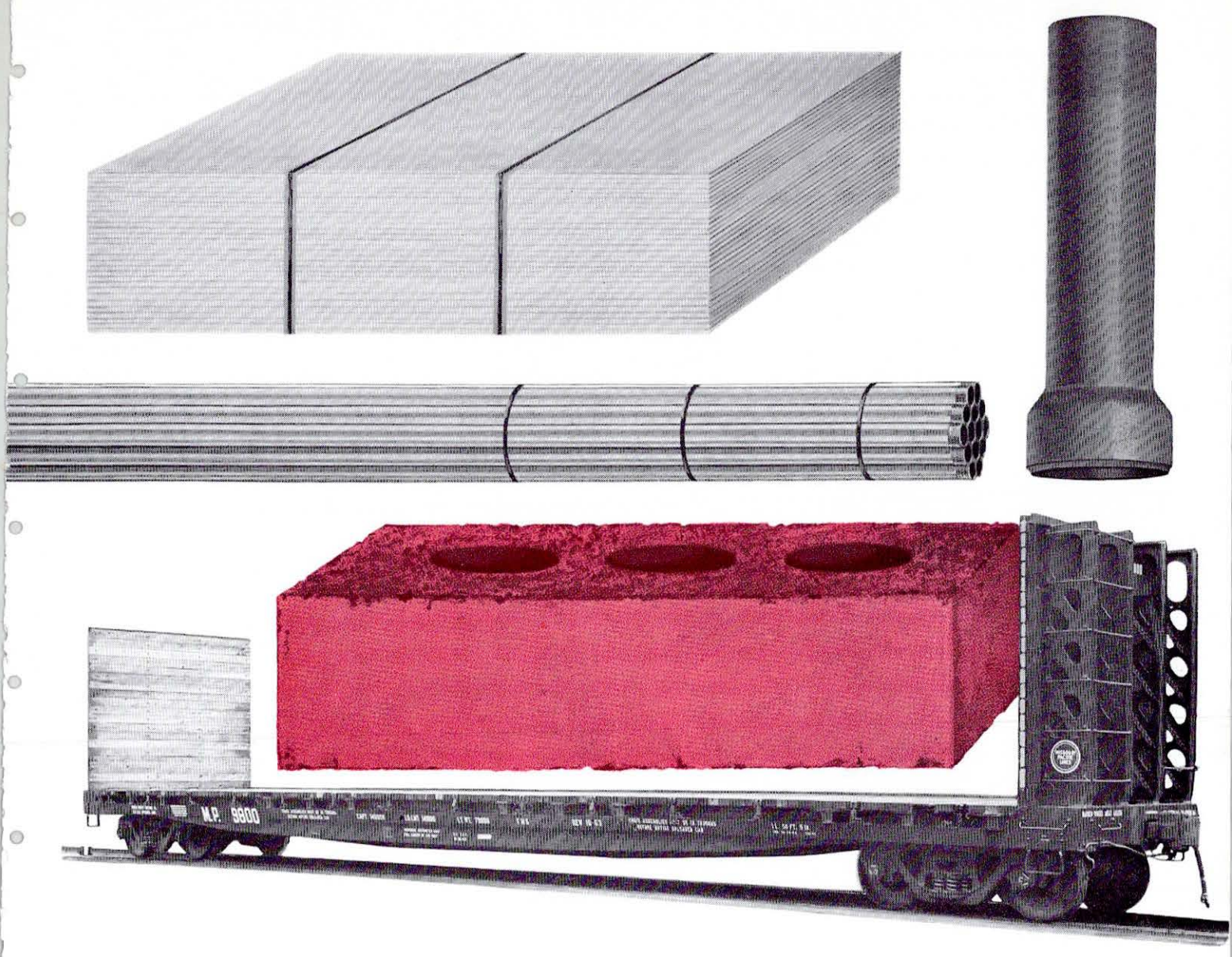
J. E. Wolfe, chairman of the National Railway Labor Conference, outlined the status of agreements at the recent AAR Data Systems Division meeting. And he summed things up this way:

Provisions of current contracts with the shop-craft unions and certain other non-ops "make it clear that technological changes may be introduced and, if they are not to be welcomed by the employees, at least the climate of hostility, suspicion and stubborn opposition has been dissipated. We have greater freedom than before to deploy and rearrange our manpower and other resources by breaking through seniority-line barriers. These are favorable developments and good omens for the future."

● **'We are not insulated.'** But, Wolfe warned, consummation of these agreements "does not insulate us against new demands when the moratorium provisions of those agreements have expired, nor against demands by organizations not privy to them."

He went on to say: "We have a record of at least modest accomplishments in the immediate past, and I see no reason to doubt that there is a large enough area in which our interests and those of the unions coincide to augur well for greater strides in the years ahead."

● **No job-freeze.** Specifically, NRLC's chairman said, "I would expect we will continue to see an entente between management and labor interests revolving about the general principles of freedom of management action and cushioning the effects on employees. To translate these broad concepts into the specific kinds of employee benefits which may become union targets is more difficult. I think it likely that there will be increasing emphasis on attrition-type protection. I do not believe we will see a revival of so-called job-freeze demands, for I hope this universally discredited device which attempts to preserve superfluous jobs rather than protect individuals has found the final resting place it deserves." ■



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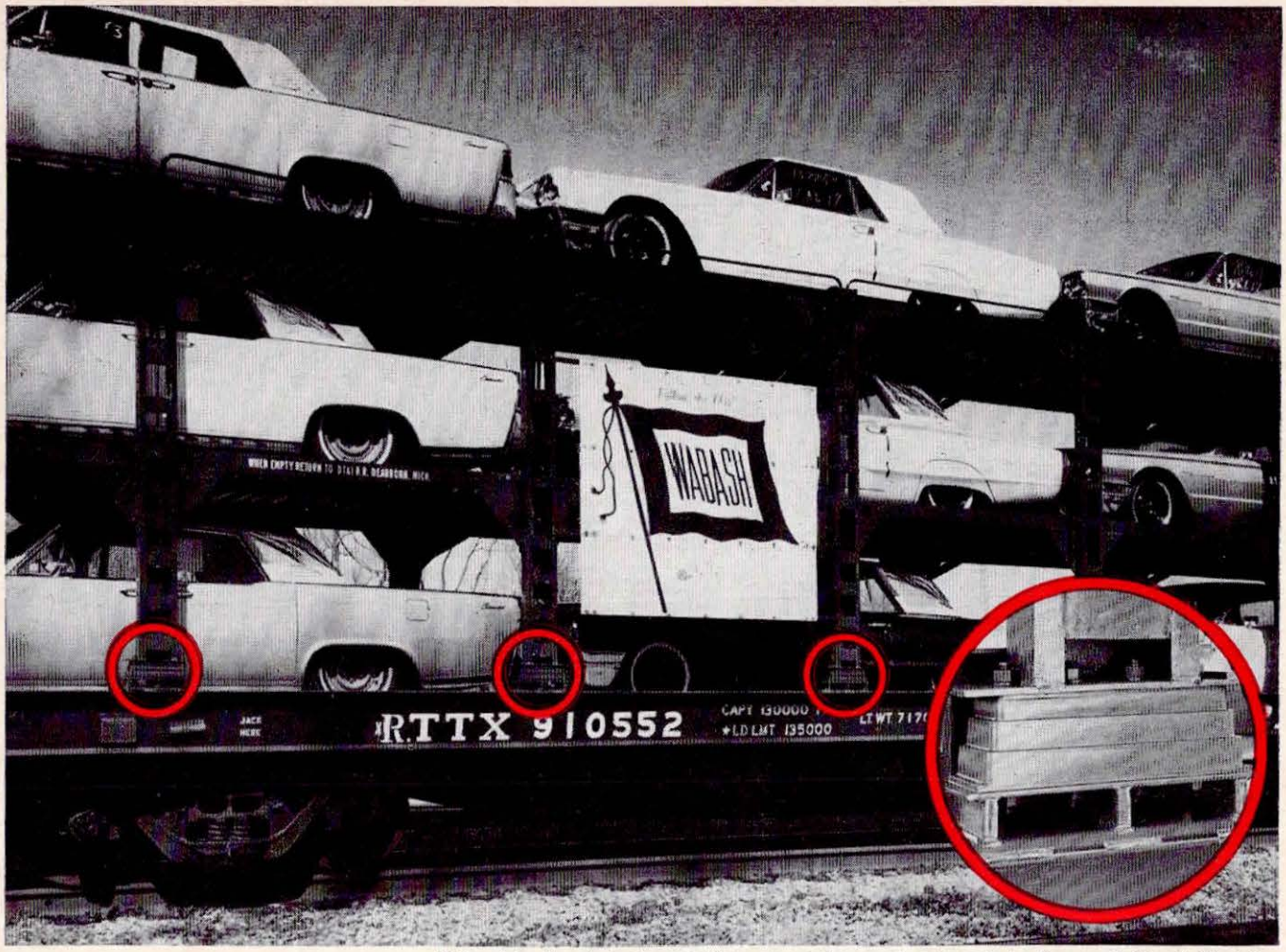

22 Lord-developed shock mountings are used on each auto rack by Paragon Bridge & Steel Co.

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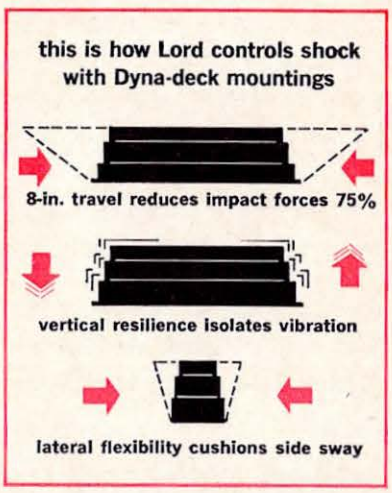
Shock can come from any direction, in any phase of railroad operation, at any time. This is why Lord Dyna-deck mountings are engineered for all-around, continuous cushioning.

Leading auto rack builders have proved these rugged mountings to be essential components, even on cars with cushioned underframes. But auto racks are just one type of application. Dyna-deck systems protect both lading and car superstructures wherever you need these benefits of *rubber with a backbone of steel:*

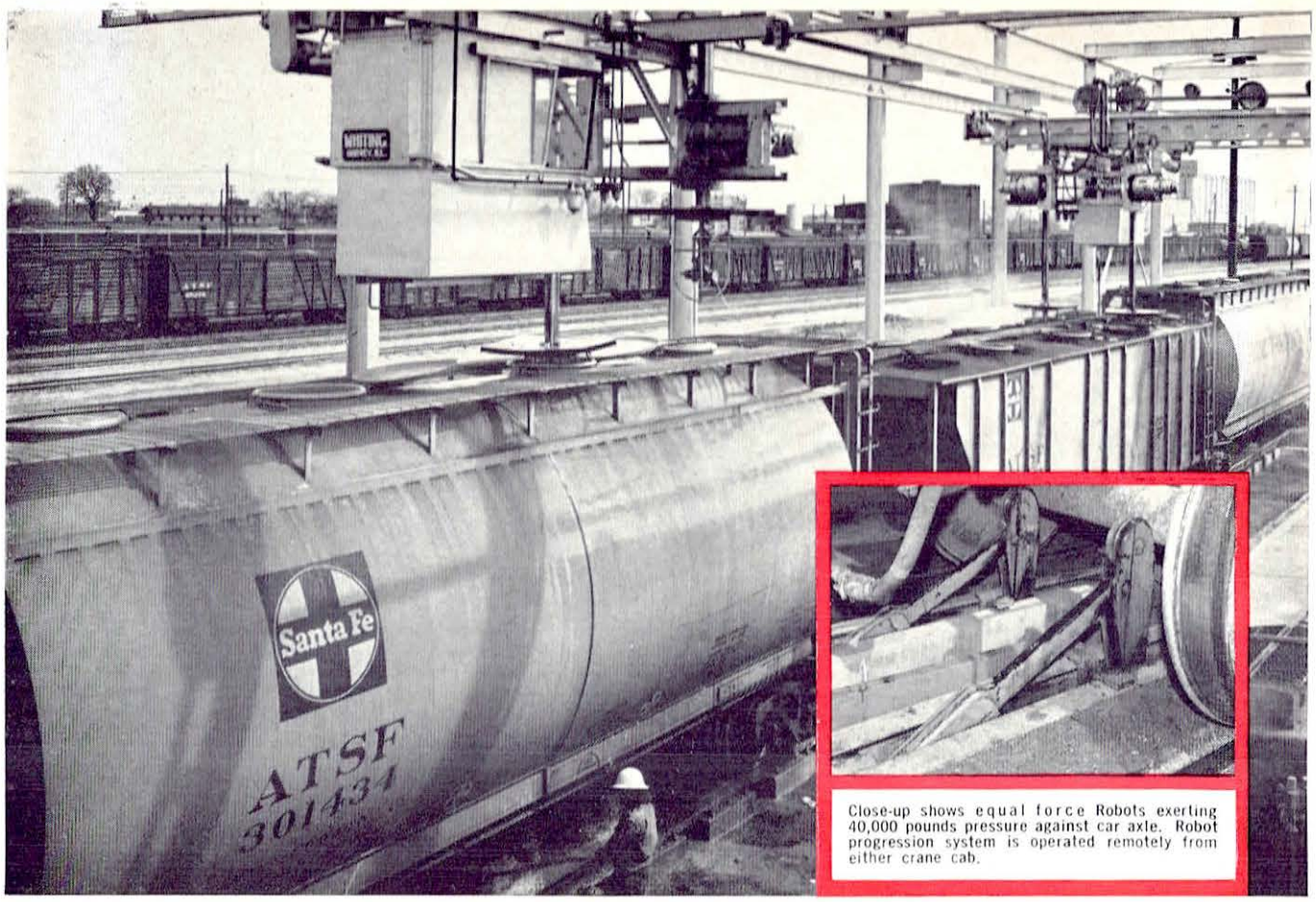
1. Eight-inch travel, both fore-and-aft, to cushion longitudinal impact.
2. Lateral flexibility to cushion side sway.
3. Vertical resilience to control high-frequency vibration.
4. All-direction flexibility to accommodate misalignment and prevent frame distortion.
5. Patented design to avoid metal wear surfaces, eliminate lubrication and maintenance.
6. Immunity to resist weather and all other environmental conditions.

Dyna-deck mountings are only one of many Lord-engineered rubber products that have proved their ability to protect lading and reduce maintenance. Our bulletin, "Shock Control for Railroads", describes others. Lord Manufacturing Company, Division of Lord Corporation, Erie, Pa. 16512. Field Engineering Offices in principal cities. In Canada: Railway & Power Engineering Corp., Ltd.


this is how Lord controls shock with Dyna-deck mountings
8-in. travel reduces impact forces 75%
vertical resilience isolates vibration
lateral flexibility cushions side sway

The leader in vibration/shock/noise control

LORD®



Close-up shows equal force Robots exerting 40,000 pounds pressure against car axle. Robot progression system is operated remotely from either crane cab.

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200 COVERED HOPPER CARS PER SHIFT?

Easily. That's because Santa Fe is the first road in the world to have a Whiting interior car washing system.

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The full story of this latest Whiting "first" working for Santa Fe at its Clovis, New Mexico yards is told in a new 6-page case study. If you're interested in cutting costs, you'll want to read it. Write Whiting.

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RAILROAD EQUIPMENT

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Railroad earnings climbing

Railroad earnings are headed upward—to more than $725 million this year and, perhaps, to $775 in 1966. That's the forecast—a private one—made by A. D. Kerr, vice president of Security Research Bureau, Inc., at a "profit strategy conference" last week at Northwestern University.

Kerr joins other observers in seeing contraction in the industry, in terms of number of companies—but he also sees "reduced mileage over which potentially greater ton-miles of freight will be handled. Inevitably, this must spell improved earnings over the long run."

Encouraging factors, according to the analyst, are three:

—"The marked change in the Interstate Commerce Commission's attitude toward rate matters."

—Improvements in management methods, particularly with regard to the use of computers.

—Improvements in use of special equipment, including unit trains, multilevel automobile rack cars and containers.

Kerr also sees a sharp decline and a near-term end to intermediate-distance passenger trains, the eventual total subsidy of suburban passenger service—and a sharp growth of freight ton-miles between now and 1970.

Railroads, however, aren't the only form of transportation for which better days are seen.

So far as the trucking industry is concerned, Frank C. Rathje, vice president of Continental Illinois National Bank and Trust Co. in Chicago, predicts "a banner year in merger activity for the trucking industry. Obviously, merger offers many potentials including those of reducing expenses, spreading costs through increased revenues and the acquiring of feeder operations."

Merger doesn't much figure as a prosperity-maker for the waterways carriers—but W. J. Chapman, vice president of the First National Bank in St. Louis, regards the industry as both "growing and prosperous. Extension of the waterways, their continued improvement, the building of new plants and terminals, development of specialized and increasingly efficient equipment and inherent advantages of water transportation all point to both short- and long-term prosperity."

RAILROADING AFTER HOURS WITH JIM LYNE

LYNE

ARE PRIVATE CARRIERS EFFICIENT?—Companies that provide their own do-it-yourself transportation would do well to look more carefully than most of them do at their transportation operations. Such was the advice given by Dr. Karl Ruppenthal at a recent meeting of the American Society of Traffic & Transportation.

"In most cases," he said, "once transportation operations have been established, they tend to grow. Seldom is there a real appraisal to determine whether or not the operations are efficient, or whether they should exist at all."

It is another case of whose job it is to keep an eye on the transportation operation of a department which usually includes all the people in a company who know anything about transportation. Just how rigorous is the scrutiny of a department likely to be when the department itself is the object of the scrutiny?

One approach might be to require private carriers to report to the ICC in the same detail that common carriers must. Only uniform and accurate accounts and statistics can truly reveal which is the more economical means of transportation.

E. G. PLOWMAN'S LEISURE—Dr. E. G. "Grover" Plowman seems to be conducting himself in much the same manner in which he did before he retired as head of the traffic department of U.S. Steel (and, a year or so later, as deputy undersecretary of commerce—where he initiated the "Northeast Corridor" and other major projects).

That is to say, this veteran educator and industrial traffic leader is now a professor at two educational institutions—the University of Maine (Portland branch) and Northeastern University (Boston). EGP is teaching business administration at Portland and business logistics at Boston, and has to flit back and forth by plane to cover his classes in both places.

Besides his educational activities EGP is, characteristically, doing consulting work on transportation problems for the city of Portland. In short, he seems to be as busy at high-level jobs during his alleged "retirement" as he ever was—which will surprise nobody who knows him. The arbitrary age of 65 is no unavoidable boundary between a life of activity and one of repose.

STRAWS IN THE WIND?—On one evening recently I saw two TV "documentaries"—one attacking river pollution by industrial and human waste; and the other equally critical of indiscriminate building of highways, to the end of providing only rapid transportation, disregarding the destruction of other values, such as the country's irreplaceable scenic and historic assets.

A great metropolitan newspaper has deplored the weakening of President Johnson's highway beautification bill by a committee which "yielded to the arrogance of the highway builders and the industries allied with them." It went on to say:

"State highway officials were almost unanimous in their hostility to proposals to use even a small proportion of the vast funds at their disposal to improve landscaping and to build scenic roads . . . These same officials—more solicitous of private interests than of public sensibilities—demonstrated their habitual narrowminded preoccupation with the single problem of movement of traffic."

My own inclination is to the belief that the problem of landscape mutilation by highway builders and the Army Engineers would be reduced at least 50% if the stream contaminators and superhighway promoters were required to pay compensatory charges for the incidental damage they do with their "improvements." And such charges would in no sense be "interference" with legitimate private enterprise, which is used to paying its way.

This situation is an element in national transportation policy that, strangely enough, is seldom mentioned.

YCSFSSIYA—Some such mysterious formula as this is going the rounds. I noticed it, for instance, in the picture of the big computer control board of the Southern Railway at Atlanta (RA, Sept. 13, p. 37).

Inquiry has elicited the information that these letters signify something like: "You can't sell freight service, sitting in your armchair." There are some variations in the letters of the formula, and in their interpretation, but the general idea is the same in all cases.

budget planning '66

By GUS WELTY
Senior Editor

Railroad carbuilders are not usually noted as the most bubbling of optimists. But today there's a sparkle to the industry, the like of which hasn't been seen for years—if ever. Reason: Railroad capital expenditures have set new records in each of the past two years and could be headed for another new high in 1966—and, with rolling stock accounting for roughly two-thirds of the total spending, that makes carbuilding today a billion-dollar business.

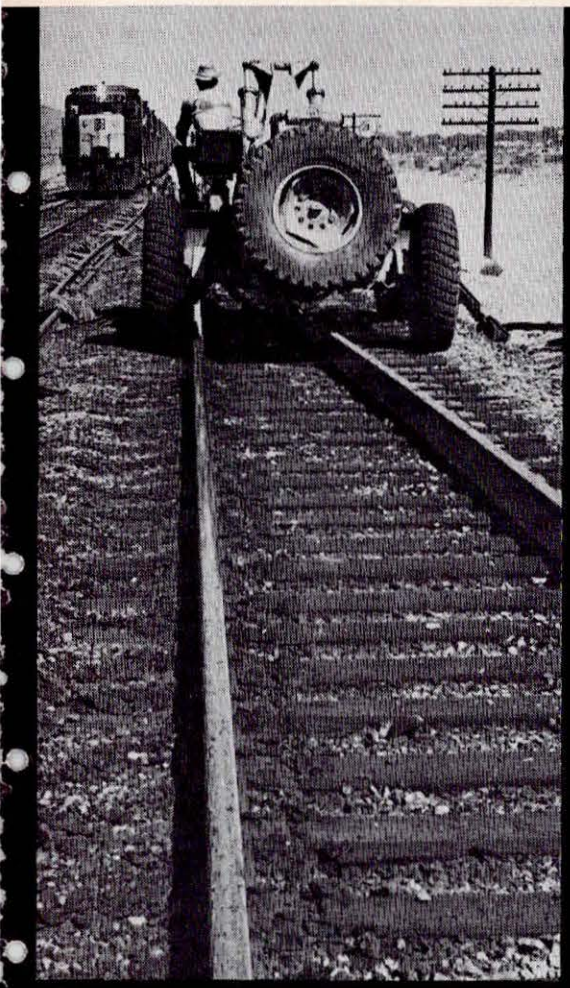
In 1964, rail-industry spending hit better than $1.4 billion, a few thousand dollars above the previous one-year high which had stood since 1951. This year, by the time all the totals are added up, the capital-expenditure figure will top $1.6 billion.

● **If not a record, what?** Asking for a third straight record performance in '66 may be like asking a college football team to get charged up to play Notre Dame every Saturday. But if the industry doesn't top its $1.6-billion peak next year, it won't be for lack of trying—and the odds are that if a new high is missed, it won't be missed by much.

Preliminary budget planning among major railroads indicates that more may be down than up in '66—but the roads that plan increased spending show substantial boosts. Expenditures by Chesapeake & Ohio-Baltimore & Ohio, for example, are now programmed to hit between $125 million and $150 million —up from about $107 million in 1965. Union Pacific will show a $20-million increase, from $127 million this year to $147 million in '66. Louisville & Nashville, Great Northern and Northern Pacific are forecasting somewhat smaller increases.

● **Where the money goes.** In almost every case, roads which plan to spend more money will spend it for motive

- Railroads may set another capital-spending record next year. If they miss, it won't be by much.
- Again, freight cars and locomotives will account for most of an expenditure of $1.5 billion.



power and rolling stock. All but $20 million to $25 million of the C&O-B&O budget will go for equipment. Union Pacific figures to spend less for power but more for freight cars—with present plans calling for acquisition of 6,470 cars in 1966, compared to about 4,300 this year. And the proposed increase for GN is accounted for entirely by new-equipment budgets. Frisco's total expenditure will stay about the same as in '65—$18 million—but equipment spending will be up.

A number of roads which always rank among the heaviest spenders—including Santa Fe, Southern, Norfolk & Western—are still doing the figuring on '66 expenditures. Another industry leader, Southern Pacific, also hasn't estimated total spending prospects as yet. But SP does figure that by the end of 1966 it will have spent $350 million for locomotives, freight cars, trucks and trailers—14,700 units in all—over the 1964-66 period. Already programmed for next year are deliveries of 153 new locomotives and 3,850 freight cars.

● **Projection: $1.5 billion.** All in all a capital-expenditures projection for '66 would point to an industry total of approximately $1.5 billion—based on what's now known, plus the assumption that other roads in the heavy-spending class will keep pace. (And added to this should be at least another $150 million, representing freight cars added to the fleet through lease by the private car lines.)

The carbuilding industry can look for a continued upswing in orders; so can the locomotive builders. By one forecast, orders for new freight cars may reach 80,000 again; orders for power could climb to somewhere around 1,500 units.

A sizeable number of roads are figuring on slight cutbacks in spending for improvements to fixed facilities. But there are exceptions—such as Chicago & Eastern Illinois, up from $1 million to $5 million in 1966, with the start of a major bridge-rebuilding program.

● **Why spend less?** Among the sizeable number of companies that expect to spend less over-all next year, one reason stands out: Tremendous power and freight-car programs over the past two or three years have eased the pressure.

One major road, for instance, points to its $23-million locomotive program this year and indicates that "it's not planned to duplicate this phase of the equipment program in 1966." Another system that ranks among the capital-spending leaders notes a slackening-off in freight-car-purchase planning with the observation that "we are beginning to catch up on our most pressing needs."

Despite the downturn in some areas, however, it seems certain that at least seven of the industry's 76 Class I roads will be in the $100-million-plus category again next year—and that's a healthy start toward the $1.5-billion forecast, especially since several of the seven are expected to go well over the $100 million line. Pennsylvania, New York Central, Union Pacific and C&O-B&O will definitely be in the group—and Southern Pacific, Santa Fe and Norfolk & Western are almost sure to join them.

● **What's certain? Change.** As always, there are the imponderables, and there are the switches in spending emphasis, and there are the possibilities—even probabilities—that figures cited now will be revised upward later on.

Long Island falls in the "imponderable" class. When arrangements for New York state to buy the road from PRR are completed, LIRR stands to benefit from a $200-million improvement program—but at this point, nobody's sure how much might be spent in '66.

Delaware & Hudson, like C&EI, offers an example of the change in emphasis. D&H plans to spend less for equipment in '66 "because we have caught up with our program for replacing obsolete motive power. [But] our expenditures for freight-car equipment will be as much as if not more than in previous years."

Missouri Pacific—among a number of roads—gives evidence that a set figure today isn't a slammed door against a change tomorrow. MP is now budgeting about $44.7 million for new locomotives and freight cars in '66, against $51.7 to be spent in '65—but the estimate for next year "does not preclude the purchase of additional equipment during the year." This happened, between estimate time in 1964 and actual spending time in '65, not only for Missouri Pacific but also for such roads as Pennsylvania and Rock Island.

● **How long an upturn?** Nobody, at this moment, is forecasting how long the industry spending boom will last. But a number of factors—including faster depreciation, the expanding demand for special equipment, the need to replace standard freight cars being scrapped, the demand for more powerful road locomotives and new yard engines—all point to continued good times for the supply industry at least through the rest of the 1960s.

At the same time, nobody is being quite bold enough to say that the days of peak-and-valley, feast-and-famine buying are over. But suppliers are expanding — Pullman-Standard's current $4.5-million program is a good example—and new suppliers are coming into the field. The consensus: 1966 will be another peak — and the valleys are getting farther and farther apart.

BUDGET PLANNING

Buying is more than paying

Long-term profitability must be considered carefully when acquiring new freight cars.

By F. N. HOUSER
Associate Mechanical Editor

Buy now—pay later. That popular installment loan slogan must always be in the minds of budget planners as they plot their freight-car spending for 1966. But why?

After all, most railroads—through equipment trusts—have been acquiring much of their rolling stock on the installment plan for decades. Interest and amortization, the "pay later" phase of installment purchasing, must always be the concern of railroad financial officers when new equipment is under construction.

● **Cost of competitiveness.** But budget planning for 1966's freight cars transcends the almost simple problem of sufficient cash. In today's rapidly changing transportation market, the railroads' problem of "what to buy" should be considered ahead of "how to pay." Cars, ordered today and written off over the 15-year period sanctioned by the ICC and IRS, will still be in service after 1980.

The prime question becomes: What will it cost later if the freight cars ordered now are not suitable for the transportation job which railroads must do five, ten and fifteen years hence? Part of the price paid for cars ordered in 1966 could be the costs of early obsolescence and inability to be competitive.

● **Tomorrow's competition.** Even the definition of tomorrow's competition is an elusive thing.

As Jervis Langdon, Jr., chairman of the Rock Island, recently pointed out to a Chicago group, pipelines, trucks and barges are not the only competition confronting railroads. "A very real competitor," said Langdon, "is the

CAR ORDERS: HOW HIGH?

	1963	1964	1965
January	4,098	10,803	9,446
February	5,976	3,821	5,194
March	5,808	7,742	7,831
April	2,573	4,313	4,821
May	6,074	7,185	5,839
June	2,349	4,584	8,538
July	4,356	4,695	6,330
August	3,021	5,344	8,801
SUB TOTAL	**34,255**	**48,487**	**56,800**
September	2,319	4,045	
October	8,533	6,830	
November	8,331	6,444	?
December	10,197	9,823	
TOTAL	**63,635**	**75,629**	

desire of industry to avoid transportation entirely by decentralizing."

Mine-mouth power generation, being investigated by some electric utilities, is one example of traditional transportation being avoided entirely. A few months ago Southern President D. W. Brosnan told the American Mining Congress:

"The Southern doesn't like mine-mouth plants. They use coal but they don't use railroads. That means railroads have to make prices so low that major electric utilities aren't likely to move in this direction.

"We want utilities' arithmetic to give them answers that favor rail transportation between mines and generating plants. Southern has done well in its territory in beating the cost aspects of extra-high-voltage transmission lines from mine-mouth plants," said Brosnan. "I am confident that we can stay ahead of that threat and that most—if not all—other railroads will be able to do as well."

Brosnan has since summarized the deficiencies of traditional coal cars in today's low-profit-margin utility fuel market by calling the conventional low-capacity hopper car in unit-train service "wasteful." Major shortcomings of standard 50- and 70-ton hoppers, says Brosnan, included:

—Too low payload-to-empty ratio.

—Too little capacity for true volume movements.

—Inability to be loaded and unloaded rapidly.

In its quest for new and more efficient coal-handling equipment, the Southern has introduced 110-ton aluminum gondolas (RA, April 4, 1960, p. 12); 100-ton steel hoppers (RA, July 13, 1964, p. 22); and recently an experimental four-unit 260-ton aluminum hopper (RA, Aug 9/16, p. 34). The 260-ton car, says Brosnan, "seems truly to hold great promise for reducing transportation costs."

● **The car's the thing.** Crucial in the ICC's recent decision sanctioning the Southern's volume grain rates was another of the railroad's equipment innovations—the "Big John" covered hopper car.

"Big John," said the Commission's report, is an advance in car technology "which makes it particularly suitable for the transportation of bulk commodities such as grain." Emphasizing the importance of "Big John's" size and mechanical features was the ICC's refusal to permit the same low rates if Southern used box cars or if competing railroads used conventional covered hoppers for the same grain hauls—in both cases claiming that standard cars would make the tariffs non-compensatory.

The idea that special equipment must always be introduced in obtaining ICC clearance for rate reductions was somewhat tempered by Commissioner J. W. Bush's observation that he would have approved the competitive rates for shipments in conventional equipment—had Southern's competitors made "a better presentation of cost factors." Bush thought that such a case could have been made, pointing out that other roads sought approval of their lower rates only if Southern's adjustments were approved.

● **Trend to giantism.** There seems to be no interruption in the trend to giantism in freight cars. Two weeks ago General American announced its 60,000 gallon tank car (RA, Oct. 4, p. 24), noting that it has seven times the capacity of the typical tank car in service at the end of World War II. The big GATX car will be operated for some months to appraise the operating characteristics of its running-gear arrangement with a span bolsters and two 70-ton trucks at each end. Loaded with liquified petroleum gas, the big car will put 218 tons on the rails under it. This car follows the pattern of a 50,000-gallon tanker with the same type of running gear which was put in service by Union Tank Car three years ago (RA, April 22, 1963, p. 12).

The Pennsylvania has designed two 150-ton, 38-000-gallon tank cars and a 150-ton, 6,500-cubic-foot covered hopper car, all with six wheel trucks. These trucks, say Pennsy officials, will permit the car to operate at fast-freight speeds wherever standard four-wheel-truck, 100-ton cars can run. The three cars are scheduled for early completion by the railroad's shop and are aimed at placing on the rails bulk traffic which is now moving by water.

● **Reduced inventories.** The PRR expects to demonstrate that the capacity and speed of movement with these new cars will permit bulk materials to be moved by rail cheaper than by any other form of transportation. The storage facilities and inventories associated with water transportation can be eliminated.

The big cars, say Pennsy officers, are expected to serve as models for future car-building plans of chemical companies that own their own cars or lease them; it is not the start of a program to get the PRR into the tank-car business.

● **The significance.** What do these developments mean for equipment planners? There seems to be a steady push to higher and higher capacities, with particular emphasis now being given to bulk materials movements.

The early years of this decade also saw railroad attention centered on bulk shipments. Two or three years ago interest switched to manufactured goods as the railroads turned their attention to high-capacity box cars. The resulting fleet for auto-parts service—including the 86½-foot, 10,000-cubic-foot models costing approximately $35,000 each—have not been altogether an unmitigated blessing.

Intra-industry controversy over the initial expenditure and the return on investment which could be realized with the rates established for these big cars culminated last week in an approximate 10% increase in auto-parts rates by

Freight-car buying involves more than the financing

eastern railroads. The possibility of utilizing these big cars in other services is also under study.

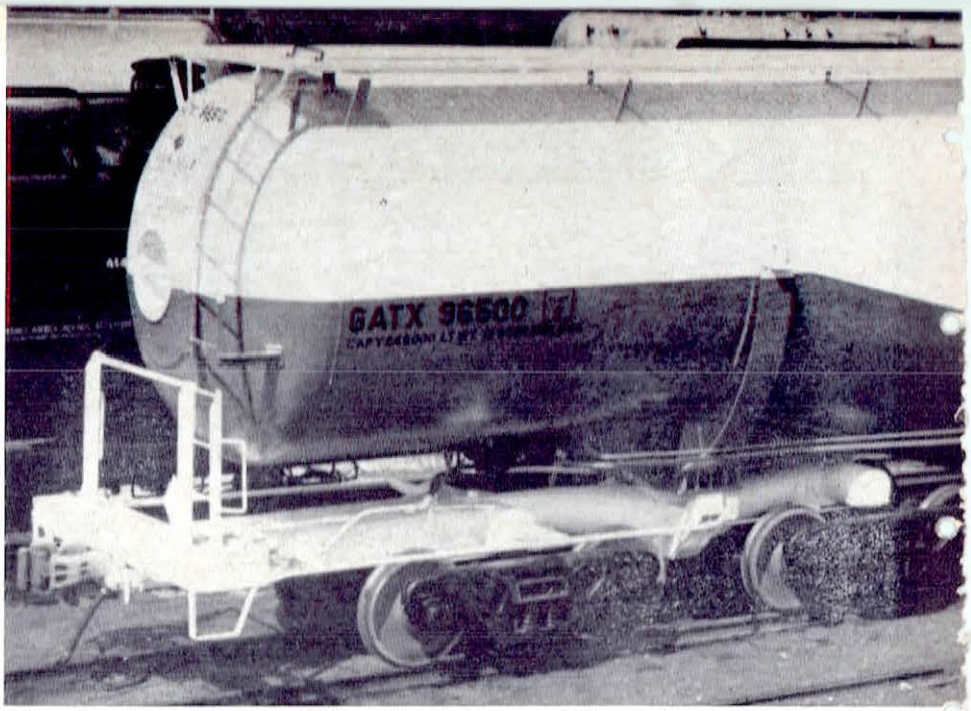
Marketing and mechanical people must work closely in planning equipment which is immediately profitable and will remain competitive in the years to come. One of the important considerations is the building of basic car structures which are designed so that they may be readily converted from one service to another.

A typical product of this type of planning is the 60-foot cushioned flat car which Trailer Train has been acquiring for services other than piggybacking. The flat car's basic underframe may be fitted out as a general service car, may be equipped with bulkheads, or may be specially rigged for the transportation of automobile frames or farm equipment. While no conversions have so far been made, or are planned, certain mechanical features of the original design would make speedy and inexpensive changeovers possible.

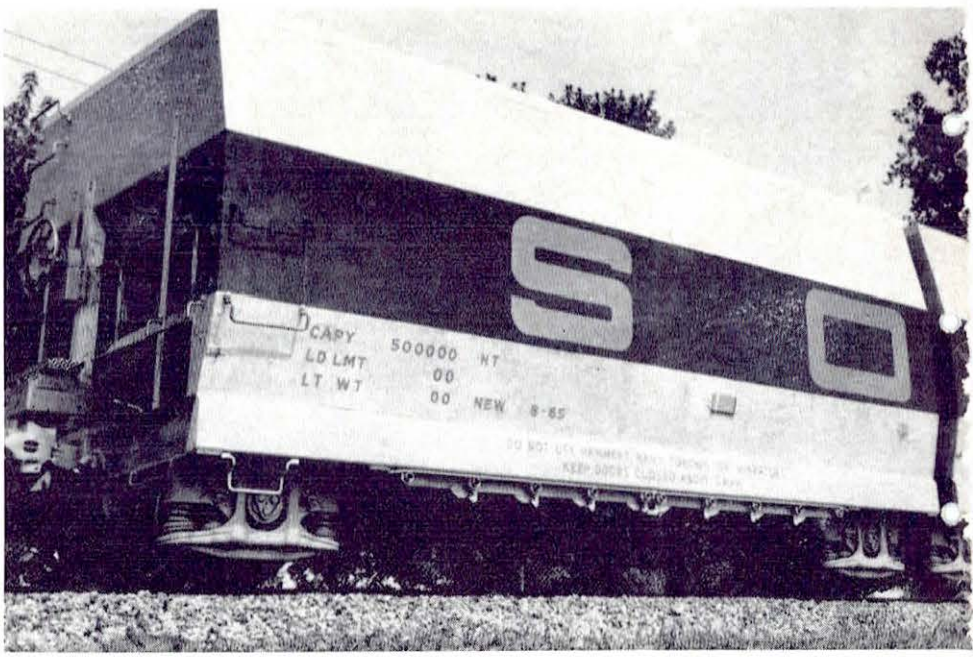
● **No more 'make do.'** In planning for future equipment, the recent actions of the AAR Mechanical Division as involving car components must be considered. Consensus of the railway industry, as evidenced by the AAR group's actions, is that the cheap compromise will no longer be sufficient for tomorrow's operating and traffic demands. Some of the traditional "make do" mechanical arrangements on cars which produce frequent failures or require continuing attention are on their way out.

Effective next year all new freight cars in interchange service will have to be equipped with automatic slack adjusters if they have conventional brake rigging. This will serve to produce more uniform braking action from all the cars in a train —and the ability to stop is fully as important as the ability to get today's freights to the high and uniform speeds which competition now requires.

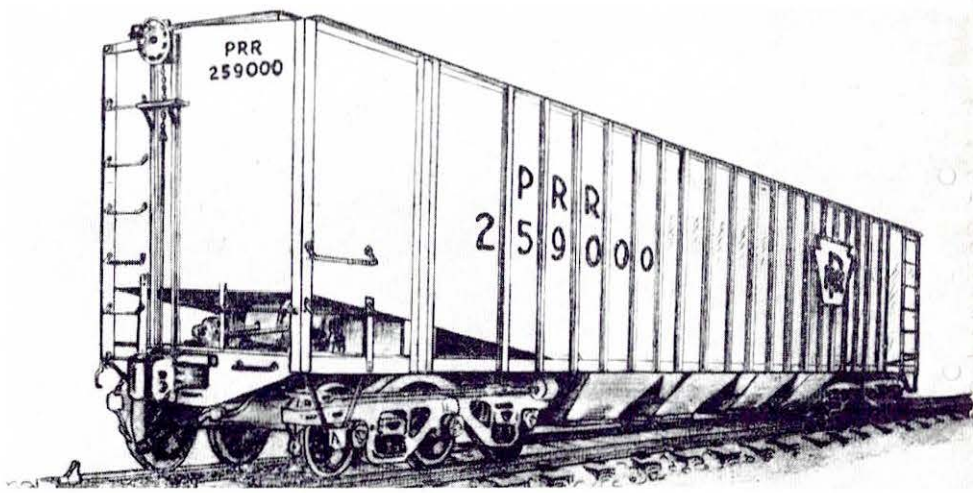
Similar action is being taken to require that center plates and truck bolsters of new cars be of improved quality to insure that trucks will swivel more uniformily, simplifying the prob-



TWO-AXLE TRUCKS under span bolsters make possible the use of a tank of 60,000-

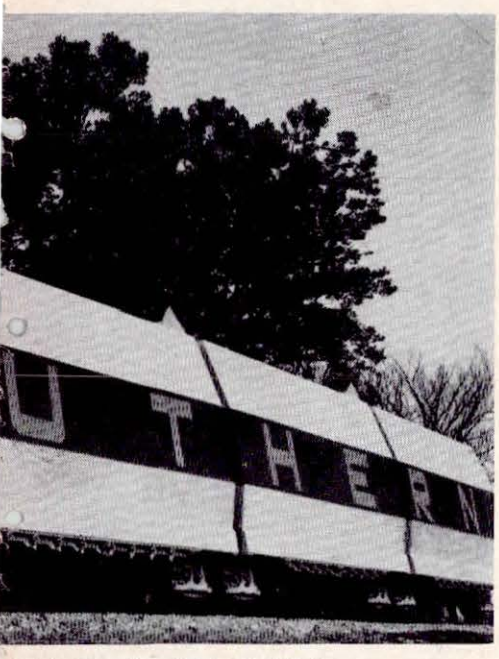


SINGLE-AXLE TRUCKS under four semi-permanently coupled units are designed to carry



THREE-AXLE TRUCKS will be utilized by PRR for experimental 150-ton hopper.

gallon capacity on General American's newest and largest car for liquified petroleum gas. Small car holds 10,000 gallons.



total on-rail weight of 300 tons.

lem of humping cars in classification yards (RA, June 28, p. 40).

Roller bearings, cartridge bearings, or stabilized and sealed plain bearings will have to be part of the planning for all new, rebuilt and heavy-repair cars, effective next August. Again the aim is to improve operations by reducing the incidence of hot boxes.

AAR Mechanical Division actions such as the preceding are usually preliminary to a general requirement for all cars in interchange service. Some of the recent dates established for these mandatory applications include:

—1968: Use of only AAR certified draft gears with requirement that heavy cars have high-capacity gears.

—1975: Use of high-capacity brake beams and high-strength box-car floor construction.

—1980: Mandatory installation of brake-cylinder release valve and requirement that there be a minimum of 2¾ inch clearance between the top of the rail and the lowest part of the car.

Passenger prospects?

While new car designs and component refinements have been introduced regularly to assure growing usage and improved operation of future freight trains, there has been a virtual stagnation of medium-distance passenger train technology for almost a decade. With President Johnson's recent signing of the High-Speed Ground Transportation Research and Development Act of 1965 (RA, Oct. 4, p. 17), the prospect of federal participation promises to bring changes. Ultimately there could be "fallout" which might be applicable to freight equipment.

● **'Spectacular breakthrough.'** The potential in the Northeast Corridor demonstration projects has been seen by Pennsylvania Chairman S. T. Saunders as possibly leading to "the same kind of spectacular breakthroughs in rail transportation technology that have resulted from government-sponsored research and development of airframes and other aspects of aviation."

Already the President has asked for an initial $20-million appropriation for the remainder of this fiscal year; $35 million will be requested in each of the two following years. Carbuilders have submitted to the Department of Commerce, charged with overseeing the demonstration projects, plans for the proposed high-speed trains. The Department and the Pennsylvania are putting final touches on a contract for implementing the Washington — New York projects. Saunders has predicted that trains will be running in less than 18 months after the contract is signed.

● **No continuing commitment.** "The Government's encouragement of rail passenger service in the Northeast Corridor does not in any way constitute a commitment to a program of continuous support," explained R. A. Nelson, Commerce's transportation research director. "The service will have to prove itself on an economic basis in comparison with other modes of transportation."

The Pennsylvania will put into operation 40 to 50 new electric multiple-unit cars between Washington and New York to provide hourly service in each direction. The New Haven will operate three to five self-propelled (possibly gas turbine) rail cars between Boston and Providence. The services will operate at speeds up to 125 miles per hour, possibly higher. The cars, as described by Nelson, will be "new, modern and comfortable, providing amenities such as food service."

The Commerce Department anticipates that orders for the cars will be placed within the next two months with every encouragement given for completion of the first cars within a year. In the case of the PRR, the Federal funds will amount to $9.6 million, with the equipment becoming the property of the railroad at the end of the demonstration projects. Thorough market analysis will be part of the Government's appraisal of the Northeast Corridor experiments. While railroads, on their own, must be plotting their role in freight transport over the next 15 years, Government will have a big role in their passenger-transport future.

ALCO'S first 3,000-hp 630, the first six-axle ac-dc production model, went to Atlantic Coast Line.

BUDGET PLANNING

Diesels: Power and speed

Ratings jump to 3,600 horsepower in single-engine models, to 6,000 horsepower in two-engine designs. Demand for six-axle units continues as railroads seek added pulling capabilities.

By C. L. COMBES
Mechanical Editor

The 1966 locomotives will have more muscles. It's a combination of muscles that will lift the tonnages over the mountain grades and speed trains where they have running room.

Fourteen new diesel-electric models, all with increased horsepower ratings, have been announced for production next year. Before the year is out we expect a few more models will be added to the list. It's the biggest change in models in the history of diesel-electrics.

All builders are in the horsepower race that started about five years ago. But the pace has been stepped up. Horsepower has been jumping about 250 horsepower per year in single-engine design; it will jump 1,100 horsepower in Electro-Motive models when its 3,600-hp SD-45 goes into production early in 1966.

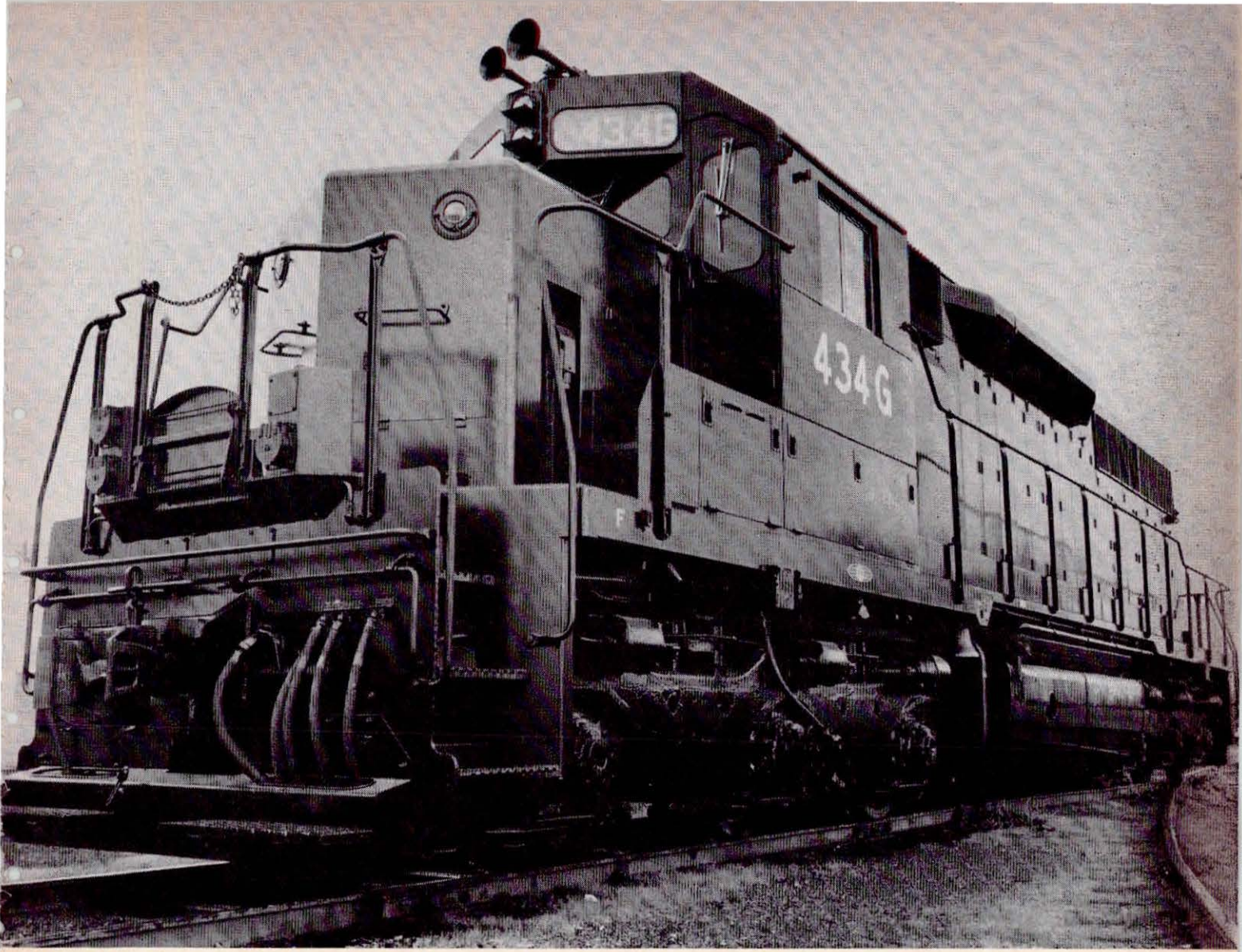
A breakthrough in electric power generation and transmission was needed to make the big horsepower increase possible. It came with the development of the silicon rectifier that permitted the space-saving alternator to team up with direct-current traction motors.

● **The 1966 choices.** Alco was first with the announcement of a locomotive of this type—the six-axle ac-dc Century 630 ordered by the Atlantic Coast Line in December 1964. Delivery of the first production model was made last July and two more units will reach ACL rails before the end of 1965. Last July, Alco also announced the companion four-axle model, the Century 430, and is expected to announce other new models in the next two months.

Last June, Electro-Motive created a stir in railroad circles when it came out with a complete new line of nine 1966 models ranging from 1,000 to 6,000 in horsepower output for traction. Five of the designs—three 3,000-hp, one 3,600-hp and one 6,000-hp locomotives—will have ac-dc transmissions.

General Electric completed the motive power picture for 1966 when it announced three new mainline models, the 2,800-hp U28B and U28C, and the 5,600-hp U56, all with straight dc elec-

GENERAL ELECTRIC'S U28's look like these



ELECTRO-MOTIVE'S new 3,000-hp ac-dc SD-40 has almost three years of experience backing its performance.

U25B units but have an added 300 horsepower for traction and changes in components.

Diesels make big increase in horsepower, more

trical transmissions. GE points out that the limits of its generator will be reached in the 3,000- to 3,500-hp range. Yet it is not ignoring the ac-dc transmission, because it has gone on record by saying that some alternator-rectifier locomotives will be produced in 1966 "to permit phasing in this type of transmission at higher horsepower where it will be needed."

● **Alternator-rectifier experience.** Some railroad men may have doubts about the performance of the ac-dc transmission but, if so, they haven't been serious enough to curtail buying. Already, substantial orders for ac-dc models are on the builders' books for 1966 delivery. Perhaps, it is because the alternators and the rectifiers are not new, have given excellent performance in applications other than diesel-electrics. More likely, it is the fact that EMD has been developing and testing the ac-dc design for more than two and a half years, and since June has been service-testing and demonstrating at least 10 units with this electrical transmission. And Alco's Century 630, which will have been in service on ACL rails at least six months before volume production starts, has been unofficially reported as operating satisfactorily with only minor "bugs" developing.

● **Six-axle demand strong.** It is significant that the first 3,000-hp models have been six-axle designs. Orders for this type of power have rocketed upward ever since new six-axle designs rolled out of builders' plants less than two years ago. They could very well outnumber the four-axle models in the 2,500- to 2,750-hp class when 1965 orders are totalled. They got a big boost in June 1964 when the ACL, the first to get this power, told how their increased pull-capabilties improved operations (RA, June 22, 1964, p. 21). The message got through to other roads, for orders started to build up in late 1964 and have continued through 1965. The recent order by the Southern for 110 locomotives, all EMD six-axle SD-35s (RA, Aug. 23, 1965, p. 45) is indicative of their popularity.

The trend will continue in 1966. Most orders will be for locomotives in the 2,800- to 3,600-horsepower class, and the six-axle models with both higher tractive-effort ratings and high-speed capabilities will continue to be attractive to railroads that traverse varying terrain with some moderate and heavy grades. It should be noted that EMD is offering a 2,000-hp six-axle locomotive, the SD-38. Some railroads in heavy-grade territory, and restricted to relatively slow speeds, cannot translate more than 2,000 horsepower into drawbar pull because of adhesion limitations.

● **Lower ratings available.** Operations required for switching, or for combination switching, branch-line and local service are not being neglected. EMD's complete new line includes the 1,000-hp SW-1000 and the 1,500-hp SW-1500. Alco has not withdrawn any of its present line from the market. It builds a 1,000-hp switcher, and is expected to announce a new 1,500-hp Century 415 before the end of the year.

Alco continues to offer other models in what was considered the high-horsepower class only a few years ago. These are the 2,000-hp Century 420, the 2,400-hp Century 424, the 2,500-hp Century 425 and even the 2,750-hp Century 628. As a guess, it is possible that the 628 may be replaced by the new ac-dc Century 630.

● **More power in the future.** The single-engine models from 1,000 to 3,600 horsepower and the two-engine models in the 5,500- to 6,000-hp class are locomotives from which the railroads will make their 1966 selections. But diesel-electric locomotive design is far from static, as demonstrated by what has happened since 1961. Horsepower will continue to increase. An idea of how far it will go can be gotten from what two railroad presidents said in discusing motive power.

Delaware & Hudson's president, J. P. Hiltz, Jr., told the Railway Fuel and Operating Officers on Sept. 13 that

Diesel-electric locomotives announced this year

	ALCO CENTURY SERIES		ELECTRO-MOTIVE					
	430	630	SW-1000	SW-1500	GP-38	SD-38	GP-40	SD-40
Horsepower	3,000	3,000	1,000	1,500	2,000	2,000	3,000	3,000
Engine:								
Model	251	251	645	645	645	645	645	645
No. of cylinders	16	16	8	12	16	16	16	16
Rpm	1,100	1,100	900	900	900	900	900	900
Cycles	4	4	2	2	2	2	2	2
Traction motors	GE-752	GE-752	D-77	D-77	D-77	D-77	D-77	D-77
Wheel arrangement	BB	CC	BB	BB	BB	CC	BB	CC
Wheel diameter, in.	40	40	40	40	40	40	40	40
Maximum speed, mph	78	80	71	71	77	65	77	77
Minimum curve radius, ft	147	229	100	100	150	250	150	250
Length inside knuckles, ft-in.	63-1	69-6	44-5	44-5	59-2	65-8	59-2	65-8
Height over-all, ft-in.	15-7 9/16	15-7	14-10	14-10	15-2½	15-5¼	15-2½	15-5¼
Width, ft-in.	10-1⅝	10-1⅝	10-2	10-2	10-3⅛	10-3⅛	10-3⅛	10-3⅛
Wheelbase, ft-in.:								
Truck (rigid)	9-4	12-6	8-0	8-0	9-0	13-7	9-0	13-7
Total locomotive	46-1	53-11	30-0	30-0	41-0	53-7	41-0	53-7
Weight, lb	272,000	350,000	230,000	248,000	244,800	356,000	244,800	360,000
Fuel capacity, gallons	3,000	2,000	1,100	1,100	3,600	4,000	3,600	4,000
Sand capacity, cu ft	28	48	22	22	56	56	56	56

in future

locomotives of the future will involve units of at least 10,000 horsepower capable of 100-mph speeds. He said this while predicting that cars and locomotives will be the salvation of the railroads after benefits of mergers have been realized.

Earlier, Edd Bailey, Union Pacific's president, said that diesel-electrics should be 3,000 horsepower for the smaller types to 10,000 horsepower for the biggest (RA, June 21, 1965, p. 36). For several years, the UP has said that it wants 15,000 horsepower for mainline service, and it has wanted this power supplied by the fewest number of motive power units. The UP has been the leader in the acquisition of big power units. It operates the only fleet of gas-turbine locomotives rated from 8,500 to 10,000 horsepower. It has the most 5,000- to 5,500-hp two-engine diesel-electrics.

The UP is interested in high-horsepower turbine power as it is developed but as Bailey points out, the diesel-electric will be the predominant motive power handling railroad power requirements in the foreseeable future.

• **What about hydraulics?** Diesel-hydraulic locomotives are of interest to many railroads. Most are waiting on Southern Pacific's assessment of this power's capabilities and maintenance requirements. Although long-range maintenance factors remain to be evaluated, current performance was reported satisfactory in the SP's report to the AAR Mechanical Division last June.

Alco has not released details on a more powerful diesel-hydraulic, but Alco's chairman, William G. Miller, said last July that the hydraulic transmission under development would enable Alco to increase horsepower rating to 4,600, a 1,000-hp increase over current designs now on SP rails.

• **Other developments.** Remote-controlled locomotives are very much in the picture. The Southern has pioneered with radio-controlled power. The Louisville and Nashville worked on the development of coupler strain-gage sensing of power requirements for automatically controlled locomtives. Essentially, such locomotives are a means of distributing head-end power throughout a train and eliminating the excessive drawbar-breaking possibilities inherent in placing too much power up front. These developments will continue and will be a big asset in the operation of long and tonnage trains.

Pennsylvania's chief mechanical officer, W. E. Lehr, told about another application of importance to unit-train operation before the Locomotive Maintenance Officers Association. He said the PRR is equipping four six-axle locomotives with GE's automatic slow-speed equipment. This will allow automatic creep speed regulation for loading and unloading bulk commodities in unit-train lots.

			GENERAL ELECTRIC		
SDP-40	SD-45	DD-40A	U28B	U28C	U-56
3,000	3,600	6,000	2,800	2,800	5,600
645	645	Two-645	7-FDL	7-FDL	Two-7-FDL
16	20	16	16	16	16
900	900	900	1,000	1,000	1,000
2	2	2	4	4	4
D-77	D-77	D-77	GE-752	GE-752	GE-752
CC	CC	DD	BB	CC	B-B-B-B
40	40	40	40	40	40
95	77	77	74	66	74
250	250	295	150	273	273
65-8	65-8	88-2	60-2	64-6	83-6½
15-5¼	15-5¼	16-5¾	14-7½	14-10	16-4¾
10-3⅛	10-3⅛	10-3 5/16	10-2¾	10-7	10-6¾
13-7	13-7	17-1½	9-4	13-0	9-4
53-7	53-7	71-8½	45-6	49-10	68-1
360,000	360,000	520,000	252,000	366,000	536,000
4,000	4,000	5,200	3,000	4,000	5,800
56	56	51	48	48	60

BUDGET PLANNING

Preparing an M/W shopping list

Decisions on what to buy are influenced by a host of factors; some conflict with each other.

By M. H. DICK
Engineering Editor

On most railroads this issue will reach the desks of top management about the same time as the M/W equipment budgets are sent upstairs by their engineering departments. As he leafs through his particular M/W machinery budget each officer will be examining a unique document.

It's unique partly because of its dissimilarity with comparable budgets drawn up on other roads. A comprehensive survey among engineering officers responsible for preparing budget requests brings out the nature of the differences and the reasons for them.

The differences start with the physical nature of the document itself. At one extreme it may consist merely of a simple listing of the machines requested, including the price of each and perhaps the estimated savings expressed as a percentage of the investment. At the other, it will be gotten up in the form of an elaborate brochure with a hard cover and including photographs and descriptions of the machines requested, along with detailed estimates of the savings expected. Obviously, these more elaborate presentations are prepared on the theory that they will have a more favorable impact on the management mind.

• **What are the yardsticks?** But there are other and more basic differences that begin with the circumstances governing the preparation of the budget. In compiling their machinery budgets most engineering officers have no yardsticks to follow except those they establish themselves. A top M/W officer may simply put in his budget the number of machines he feels are needed, more or less without regard to the amount of

money involved. Another will determine the total amount on the basis of what he thinks management will approve.

As a measuring stick others will include in the budget only machines that will produce an annual return on the investment that is equal to or above a given minimum. Interviews indicate that this minimum is generally not less than about 30%. On some roads it is much higher. It is not difficult to find machines that will produce annual savings of 30% or more on the investment, and returns of 100% or more are common.

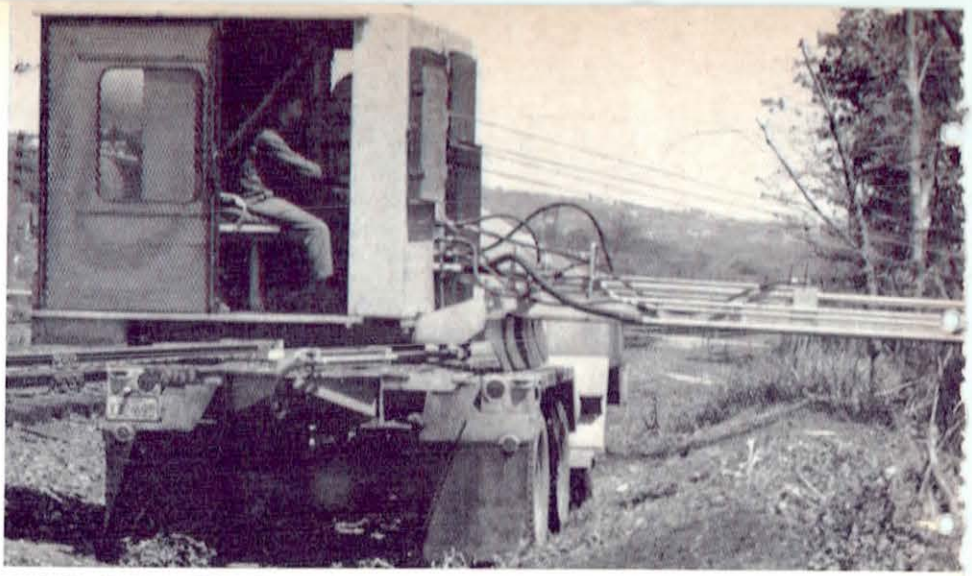
● **Management takes a hand.** Questioning of M/W officers brings out the fact that in the great majority of cases these criteria are determined by themselves. Occasionally, however, a road is found on which it is management that takes the initiative. On one road, for example, the engineering department was recently told by the president that items for inclusion in the 1966 M/W equipment budget should produce an estimated return of at least 40%. He considered this limitation necessary, he said, because the company would be making heavy purchases of new cars and locomotives and he wanted to avoid placing undue strain on its financial resources.

Buy now — or wait?

There are still other circumstances that cause variations in the M/W equipment budgets of different roads. One of these is the attitude toward new machines. Engineers on some roads are quick to take advantage of new offerings of the manufacturers. Others, on the other hand, are governed by a more cautious attitude, preferring to observe the performance of new machines on other roads before including any of them in their own budget.

● **Languishing fleets.** The adequacy and condition of a road's M/W equipment fleet are other factors that produce differences in equipment budgets. Close observers of developments in this field will not have difficulty recalling instances in which such fleets have been allowed to languish over long periods. Sometimes this happens as a result of a decline in earnings. At other times it may occur simply because the management or the engineering officers, or both, have not been machinery-minded.

These same observers will have little trouble recalling instances in which an upturn in business or a change in management has led to a dramatic reversal of policy with resulting large purchases of M/W machinery. Such sudden and sweeping changes in policy are not at all uncommon. When they happen one effect is to create at least a temporary bonanza for those supply companies fortunate enough to obtain a slice of the business. Such periods of peak buying are, on the other hand, likely to be followed by several years of sharply reduced purchases.



DESIGN IMPROVEMENTS, such as in this Fairmont Ballast Maintenance Car, help

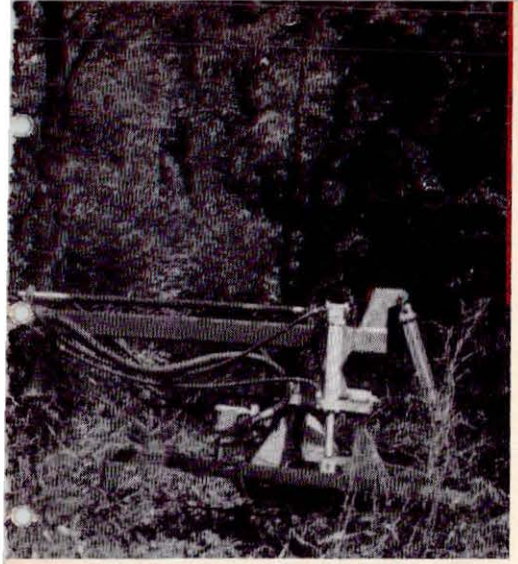
● **Why budgets vary.** The fact is that on most roads the size and composition of the M/W equipment budget vary widely from year to year. Reasons for this are not hard to find. They can best be illustrated by examples. Here is one road, for instance, whose equipment budget this year was unusually large because it included a sizeable purchase of automated production tampers, not an inexpensive item. For 1966 its budget will drop back to a more normal figure and will be confined pretty much to machines acquired for replacement of worn-out units.

This year's budget of another road also included a substantial number of automated production tampers. However, the budget for next year, if it's approved, rather than dropping will be even larger than this year. The reason is that the road, because of unsatisfactory earnings over a period of years, has fallen behind in its mechanization program and is now in a catching-up phase. But in 1966 the emphasis will switch to other types of equipment. Since the road's tie-renewal equipment had become obsolete, the chief engineer is requesting permission to purchase a substantial number of machines for use in this kind of work, including tie-cutting, spike-driving and tie-inserting units. Among other things his budget also includes a relatively large number of trucks, considerable equipment for rehabilitating highway crossings ahead of surfacing gangs, and a number of medium-size tampers which he plans to use in tandem with the automated machines he acquired this year. "If we get everything we are asking for we'll be in pretty good shape equipment-wise," says this chief engineer.

NEW IN THE M/W FIELD is this brush cutter by Railway Maintenance Corp.

● **Effect of outside factors.** Some times exterior circumstances dictate changes in the composition of equipment budgets. For example, one engineer M/W reports that conditions resulting from contract revisions dealing with the use of train-service personnel on track machines have led him to include a number of on-track cranes in his 1966 budget. "We already had a number of these cranes," he explained, "but there were times in the past when some of them were idle. Since we can now use these machines for additional jobs without putting operating personnel on them we have more work for these units than can be handled by the ones we have. So we are including several on-track cranes in our 1966 budget."

The equipment budgets prepared by engineering departments also reflect shifting needs dictated by variations in the kinds of work planned for the year. Inclusion in the budget of a larger-than-normal rail-renewal program may be reflected in the equipment budget in the form of abnormally large requests for rail-laying machinery. A corresponding



manufacturers to build M/W markets.

relationship obviously exists between other types of work and the equipment required to perform them.

The appearance on the market of new types of machines can also have an effect on equipment budgets. A current example is the recent introduction of rotary-type brush cutters by several manufacturers. Machines of this type are being included in the 1966 equipment budgets of a number of roads. Other relatively new devices that will be turning up in the next year's equipment budgets include a track-type push car fitted with a pair of rubber-tired wheels so it can be hauled over the highways, a vibratory-type car-shaking device that is proving effective for use when unloading ballast cars, and improved types of tie-renewal machines.

Successful manufacturers in the M/W equipment field long ago learned that an effective way of building up their sales volume is to keep bringing out new machines. These may be machines designed to perform jobs not heretofore mechanized, or their purpose may be to do a job better or more efficiently than equipment already on the market. An equipment manufacturer said recently that a rule of thumb used in guiding the development work of his company is that it was necessary to bring out at least three new machines each year if the sales volume is to be maintained at a satisfactory level.

● **Better machines wanted.** The wisdom of such a policy on the part of manufacturers was underscored in a conversation with an engineer maintenance of way of a prominent road. The subject under discussion was the company's equipment budget for 1966. The discussion dealt as much with what was not in the budget as what was in it. One kind of equipment not included in the budget was tie-renewal machines. The reason, as explained by the engineer M/W, was that, in his opinion, the equipment presently on the market for this purpose is not sufficiently developed. What he wants is equipment capable of doing the job 50% faster than existing machines. "If a manufacturer should come out with tie-renewal machines of the rate of production I have in mind, I wouldn't hesitate a minute before putting them in the budget," he said.

It has been shown in this article that there is not only great dissimilarity between the M/W equipment budgets of different roads but also that the budgets of any given road in different years tend to show side variations in the types of equipment included and in the amount of money involved. The impression given is that the equipment budgets between roads, and between different years on the same road, have little in common. This impression is erroneous.

There is one thing that all M/W equipment budgets have in common, and that is that each of them as a compromise. It is a compromise between various factors—between the actual needs and the money available to satisfy them, and between the desire to acquire the latest types of equipment and the fact that the machines they would replace are still capable of years of productive service.

● **Changes complicate problem.** The problem is complicated by the rapid changes taking place in the equipment on the market. The manufacturers are continually making improvements in their machines—improvements designed to boost their productivity or in some other way to enhance their value to railroad users. Beyond this, the manufacturers are constantly looking for new and more effective ways of applying machine power to M/W tasks. Out of these efforts are coming the newer, faster and more automated machines, some of which have multipurpose capabilities. And even these machines, as advanced as they may be, may soon be superseded by equipment capable of superior performance.

The old and the new

If a railroad were starting from scratch today in mechanizing its M/W forces the matter of producing an equipment budget would be relatively simple. The most difficult part of it would be to decide which of the most advanced machines on the market to buy. It would then be a matter of purchasing the machines in the amounts needed as rapidly as available funds would permit.

● **Ideal versus reality.** Unfortunately, this is an ideal situation that has no resemblance to the realities as they exist on the railroads today. The M/W forces on most railroads are now highly mechanized. On the typical railroad the equipment owned ranges in age all the way from earlier models 15 or 20 years old to the newest types. What this means is that almost every gang is a mixture of the old, the not-so-old and the very new. The objective must be to keep the equipment as nearly up-to-date as possible consistent with the financial condition of the road and sound economics of equipment replacement as defined by the particular company.

With equipment that has reached the end of its economical service life there is no particular problem. On most roads a unit of equipment is considered to have reached the end of its useful life when the annual cost of keeping it operable rises above a predetermined figure. Presumably it is then retired and replaced by a current model, although from observation of the equipment in use on some lines it is apparent that there are machines in service today that should long since have been retired by any standard of measurement.

● **Enter obsolesence.** The problem becomes more complicated when obsolesence enters the picture. For almost every machine in a given gang there is a more advanced model on the market. At what point and on what basis is a road justified in replacing the older machine with a newer one? This is the main area of compromise when preparing M/W equipment budgets.

The dilemma confronting budget makers can best be described in the words of a machinery man who was discussing the problems involved in keeping his tie-renewal equipment up-to-date. "Our several tie gangs," he said, "are mechanized with machines of different makes bought over a span of several years. Most of the machines we have are now obsolete in varying degrees depending on their age. We could, of course, replace all of them with the latest models, but I doubt that this would be a wise move even if we could get the money. First, we would have a hard time justifying the economics of it. Second, we could easily overload ourselves with new equipment which conceivably could itself become obsolete in a few years. Because of these considerations our policy each year is to replace some of the oldest machines with the latest models. This way we keep our tie gangs fairly well up-to-date."

Conversations with M/W men indicate that generally they are aware that their equipment budgets are bundles of compromises. Even so, they figure that, given a modicum of understanding on the part of the people who approve the budgets, they will find it possible to keep their equipment fleets moving in the direction of a higher level of performance.

BUDGET PLANNING

Key word for S&C personnel: Urgency

Planning for '66 is one thing—but with computers doing the things they're doing today, planning has to be for years ahead.

By ROBERT W. McKNIGHT
Signaling and Communications Editor

There's a new sense of urgency in communications and signal departments these days—urgency that goes beyond the planning of one budget, which may be for a year, to the planning for a future that stretches well beyond a single 12-month period. A principal reason: The era of the real-time, on-line computer has arrived—and its impact on communications and signaling will likely be as significant as it will be on any other railroad operation.

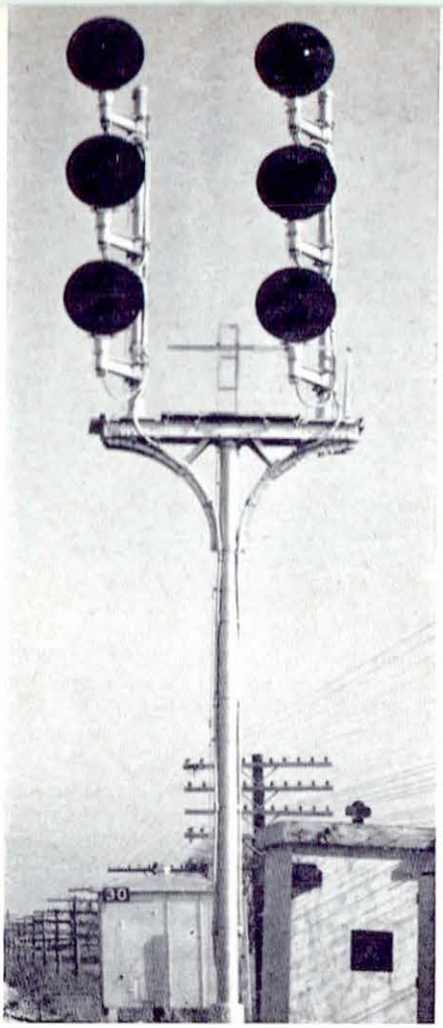
● **Digital controls for signaling.** For the signal engineer, the process digital control system is here now—not still just a dream in a computer manufacturer's development department. Two railroads are in the process of constructing retarder classification yards in which process digital control systems will provide not only automatic switching and speed controls but also inventory control of cars entering, being classified and leaving the yards in outbound trains. A third railroad now has such an automatic yard in partial operation.

Heretofore, the automatic classification yard has made use of an analog computer for control of automatic switching and speed-control functions. Now the digital-type process control computer is being used to provide the additional function of freight-car inventory. With this type of additional control, it is possible for the yardmaster, for example, to obtain an immediate print-out of all cars in the yard and their track location. Also, outbound train consists can be prepared automatically by the computer. The time-consuming hand-sort by clerks is eliminated.

● **Cost factors ever present.** How does the cost of digital controls compare with analog controls? Very favorably, say some experts—while others predict that the inventory function will add to automatic-yard costs. It's probably too early to tell too much about eventual costs, with only three yards under construction or in operation with the digital process control systems. But on one point there is complete agreement among computer specialists, signal engineers and operating men: The digital computer provides an increased flexibility not available with analog computers. And, notes one railroad operating officer, the ease of making changes with the digital computer makes it well worth the cost.

In another type of hardware, the weight-responsive retarder, a new element has been introduced into retarder yard design. This new type of retarder, some say, takes the guesswork out of freight-car weights, so far as retarder control is concerned. In this connection, a new type of modified retarder classification yard has been installed within recent months on two railroads. Three of these yards rely on a notched rail for sensing the speed of the moving cars and a weight-responsive retarder for controlling cars to a desired speed. So far, these semi-automatic yards have been installed where railroads are handling up to about 1,500 cars daily.

● **Semi-automatic — good or bad?** The recent interest in the semi-automatic retarder yard is new but the semi-automatic yard itself, with selective speed controls, was a forerunner of the automatic yard in which speeds leaving retarders are determined by analog or digital computers. The recent interest stems from the fact that the cost squeeze is ever present. Some railroad officers have felt, and so stated, that automatic yards costs too much; some have not been able to see savings accruing each year from the completely automatic yard. But other officers have made studies of freight loss and damage at yards before and after automation —and such studies have shown L&D costs down by 50% or more. Further, it's generally agreed that automatic yards cut the time of cars spent in yards. One rail officer states the case against automatic yards with a question: "Do they have to cost so much?" The answer, now, is "yes." And the automatic-yard supporters point out the old adage: "You get what you pay for."



● **Classification problems.** It is generally agreed that the desirable speed for coupling freight cars is four miles per hour or less. Also, it is generally agreed that no two freight cars roll exactly alike. With these two thoughts in mind, several facts must or should be taken into account when classifying cars in a hump yard:

—Amount of curved and straight track the car must travel beyond the last point of retarder control.

—Relative weight of the car, whether it's empty or loaded.

—Distance to go on the class track to coupling.

—Rollability.

—Weather conditions.

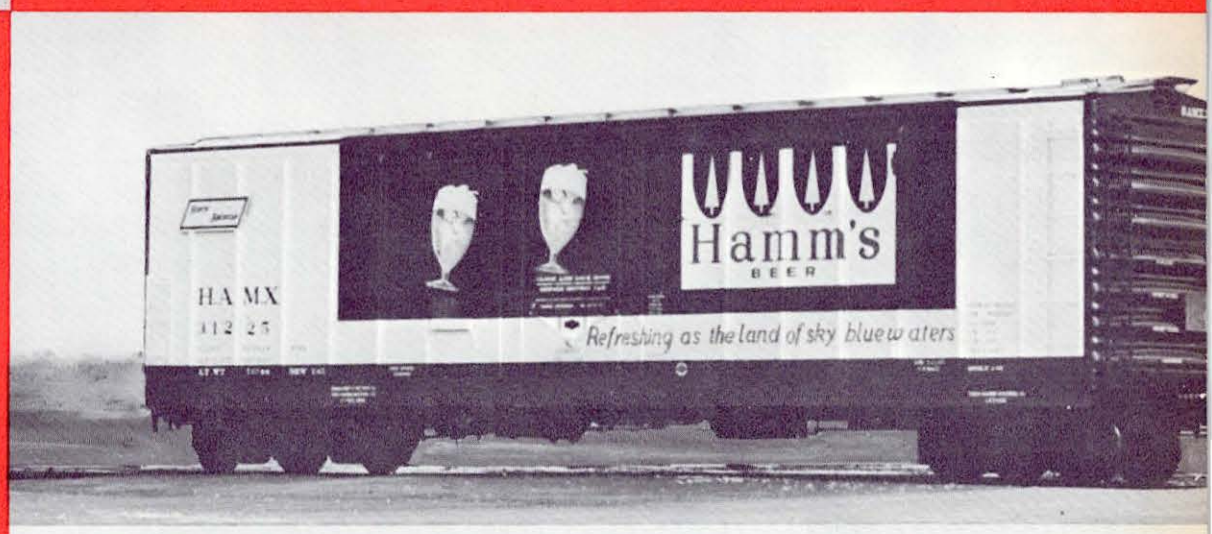
Admittedly, reducing these factors to known conditions of measurable quantities so that they can be fed into a control system is a large task. The solution to date has really been in one of two approaches:

—Some means of measurement is employed in the completely automatic yard so that all above-mentioned factors are known to the computer-directed control system to produce the desired results.

—In the semi-automatic yard, certain assumptions are made about these

(Continued on page 80)

Over 3,000 void-free cars equipped with LANDRETH Pre-molded Urethane foam Panels*



*Patents Pending

Reduce labor costs with easy-to-install LANDRETH Pre-molded Urethane foam Panels

Landreth continues to pioneer new equipment and systems for the transportation industry. Landreth's experienced engineers have dedicated over 60 years of service to the railroads as well as to the research and development of quality, labor-saving, and profit-making systems and products.

Our modern plants operating under controlled laboratory conditions, supervised by trained engineering specialists to insure the best possible insulation to suit your custom needs.

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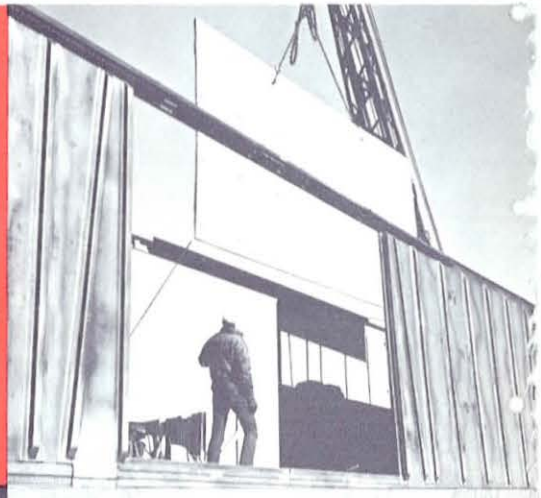
Now you can free capital that would normally be invested in special facilities, research laboratories, engineering, and labor.

How to reduce costs and increase efficiency

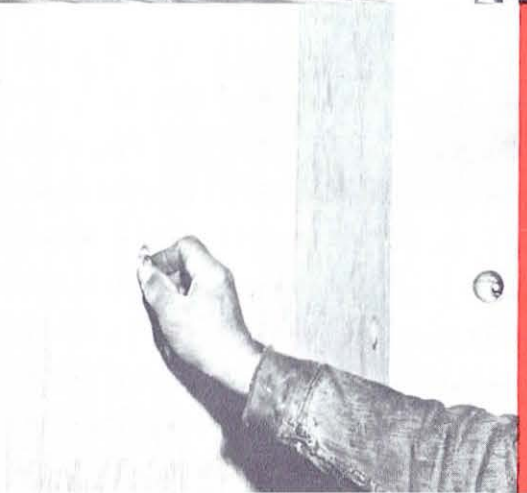
1 Workmen lowering end panel into place. Panels are moved into production line on freight cars and lifted into cars on cranes.

2 Workmen lowering side panel into place.



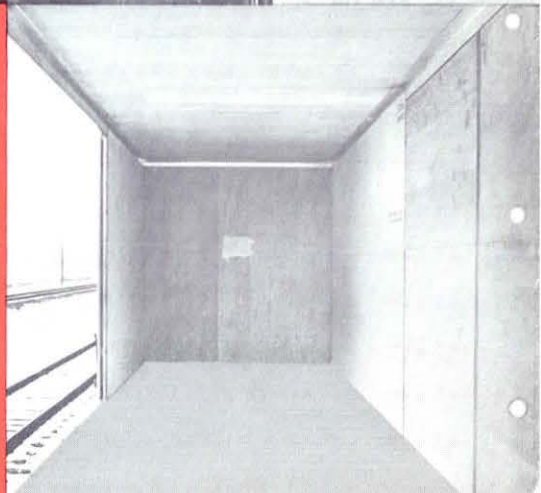
3 Workmen fitting side panels into place. Only 14 panels per car—panels are pre-trimmed, complete and ready to bolt into place for the sides, ends, ceiling, floor, and door.

4 Workmen fastening "Nelson" stud to outside post. Insulation thickness is reduced by ½ over conventional insulation materials.



5 Workmen inserting attaching device which when tightened, secures panel to side of car. This effective fastening system provides fastening without the normally associated heat loss.

6 Finished car. All joints foamed to insure a complete air-tight car.



Landreth panels increase insulation efficiency and cut costs

The new Landreth Pre-Molded Urethane Foam Panel enables railroads and car builders to build a better car faster and with less man hours in their shops.

The new Landreth system enables the builder to provide a Urethane Foam car without the necessity of installing special machinery and costly facilities.

Landreth Pre-molded URETHANE foam Panels engineered and proven best by test

The Inside Story of Budd Report #2238

The Landreth Insulated Car equipped with Landreth's Pre-Molded Urethane Foam Panels has just undergone exhaustive tests. After six months of road tests, the car was tested in The Budd Company testing laboratories in Philadelphia.

Here are the startling results from the Budd Laboratory's report.

The car constructed with the Landreth Pre-Molded Urethane Foam Panels was to be tested against two other cars constructed with Urethane Foam block. All the cars had been previously road tested for six months or longer.

The Landreth equipped car had absolutely no air leakage, no hot spots, and *no voids in the foam.* In addition, at 100 degrees differential, the car built with the Urethane Foam block had a BTU average of 143 BTU's per hour. The car equipped with the Landreth Pre-Molded Urethane Foam Panels also at 100 degrees differential and tested under the exact conditions, showed an average of just 93 BTU's per hour.

The Landreth Insulated Car was at least 50% more efficient than the car constructed with foam block. Conclusive proof that the Landreth Pre-Molded Urethane Foam Panel—is "Best by Test"!

Reduce labor costs with easy-to-install Landreth pre-molded Urethane foam panels*

Landreth Pre-Molded Urethane Foam Panels provide a lower K factor, as low as 0.11 (BTU's/sq. ft./hr./°F/in.) at 70 degrees as compared to 0.23 for conventional insulation. Over 90% of Urethane cells are closed. Thus, locking out moisture.

Check these features that make LANDRETH pre-molded Urethane foam panels*— best by test!

- ★ No Air Infiltration
- ★ No Localized Hot Spots
- ★ Non-Burning Foam
- ★ Easy Repairs
- ★ Seamless Vapor Barrier
- ★ Greater Thermal Efficiency
- ★ Thinner Walls
- ★ Completely Pre-Fabricated
- ★ Guarantee No Voids
- ★ All Joints Foamed
- ★ No Moisture Absorbtion
- ★ Odor Free and Non-Toxic
- ★ Fungus and Rot Proof
- ★ Added Structural Rigidity
- ★ Improves With Age—Does Not Deteriorate
- ★ Fire Proof
- ★ Does Not Split or Settle From Road Vibration or or Temperature Change

Highest quality controlled Urethane material on the market today

*Patents Pending

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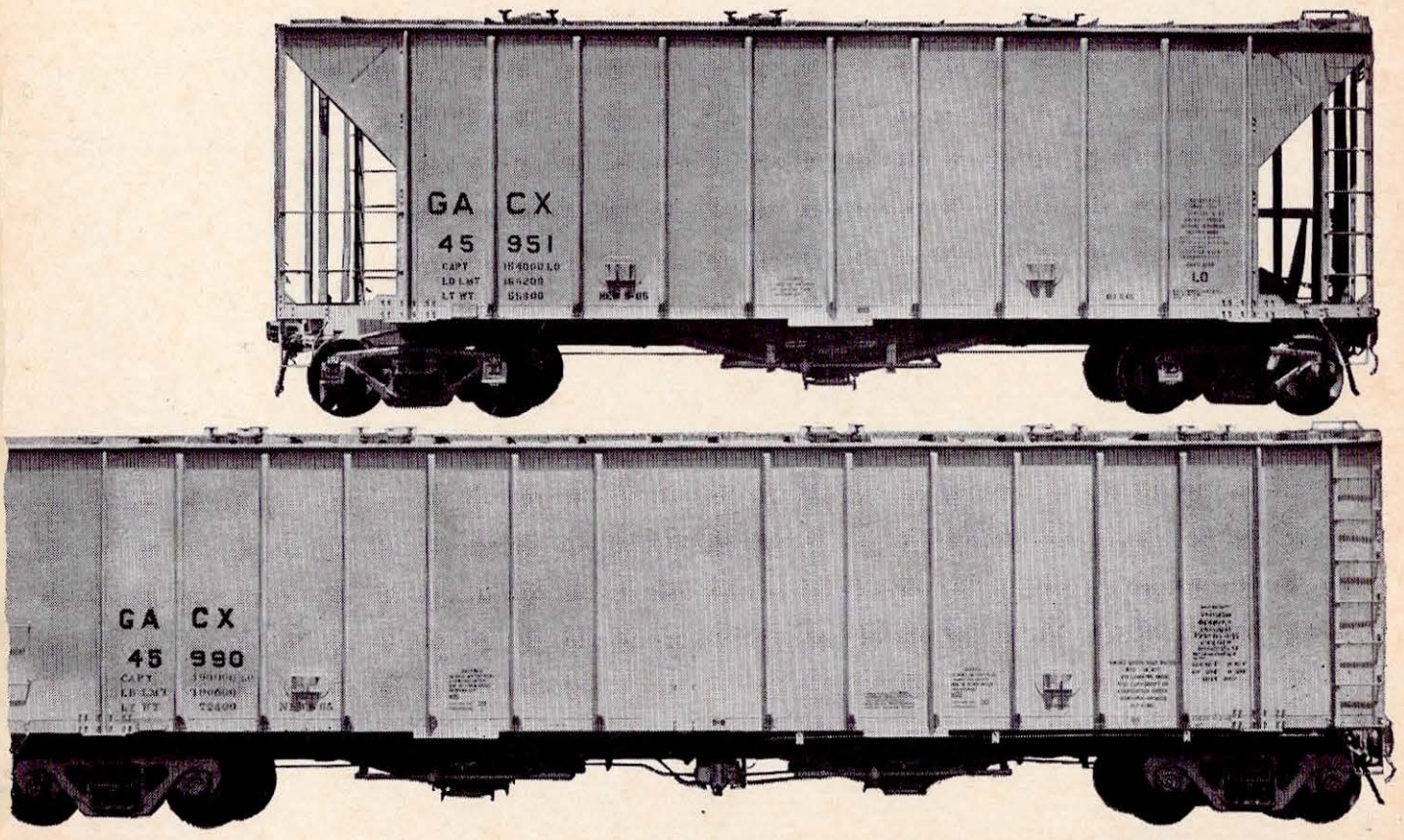
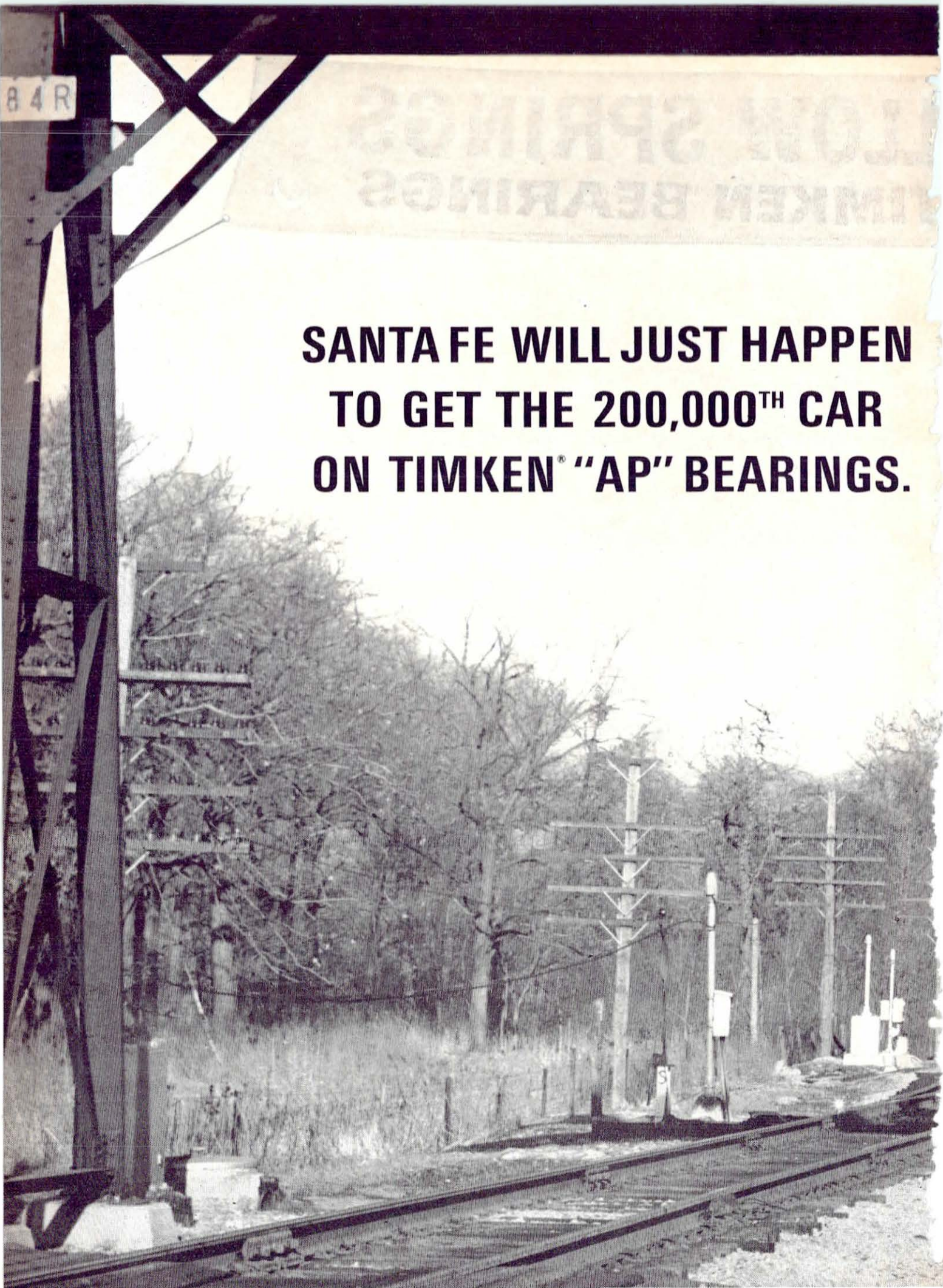



SANTA FE WILL JUST HAPPEN
TO GET THE 200,000TH CAR
ON TIMKEN® "AP" BEARINGS.

The Atchison, Topeka and Santa Fe recently bought new cars equipped with Timken® "AP" bearings. Among them was the 200,000th Timken bearing-equipped car.

We can see it highballing through Willow Springs and every other town along the Santa Fe. We know it will perform brilliantly because we take these precautions with the bearings:

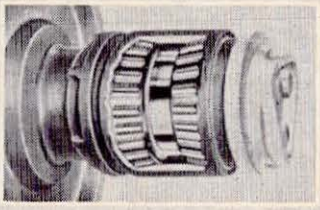
We make the steel for each bearing in our own vacuum-degassed electric furnaces. Then the bearing is case carburized to give a tough inner core and a hard, wear-resistant surface. It's especially designed to take shock loads.

Each roller is carefully checked, both visually and electronically, to insure consistently high performance. 100% inspection of seals is always a must.

Lubricants get a thorough check, batch by batch, to insure uniform, dependable lubrication. Each bearing is fitted with an extra-tough forged backing ring to take the necessary mounting pressures without cracking.

It's too late to order the 200,000th Timken-equipped car, but you can still take advantage of all these extra precautions.

Timken "AP" bearings don't need a special maintenance schedule. That's why they're on every major railroad in the U.S. and Canada. Check their performance record on your railroad, and then put more of them to work for *you*. The Timken Roller Bearing Company, Canton, Ohio. Manufacturers of Tapered Roller Bearings, Fine Alloy Steel and Removable Rock Bits.



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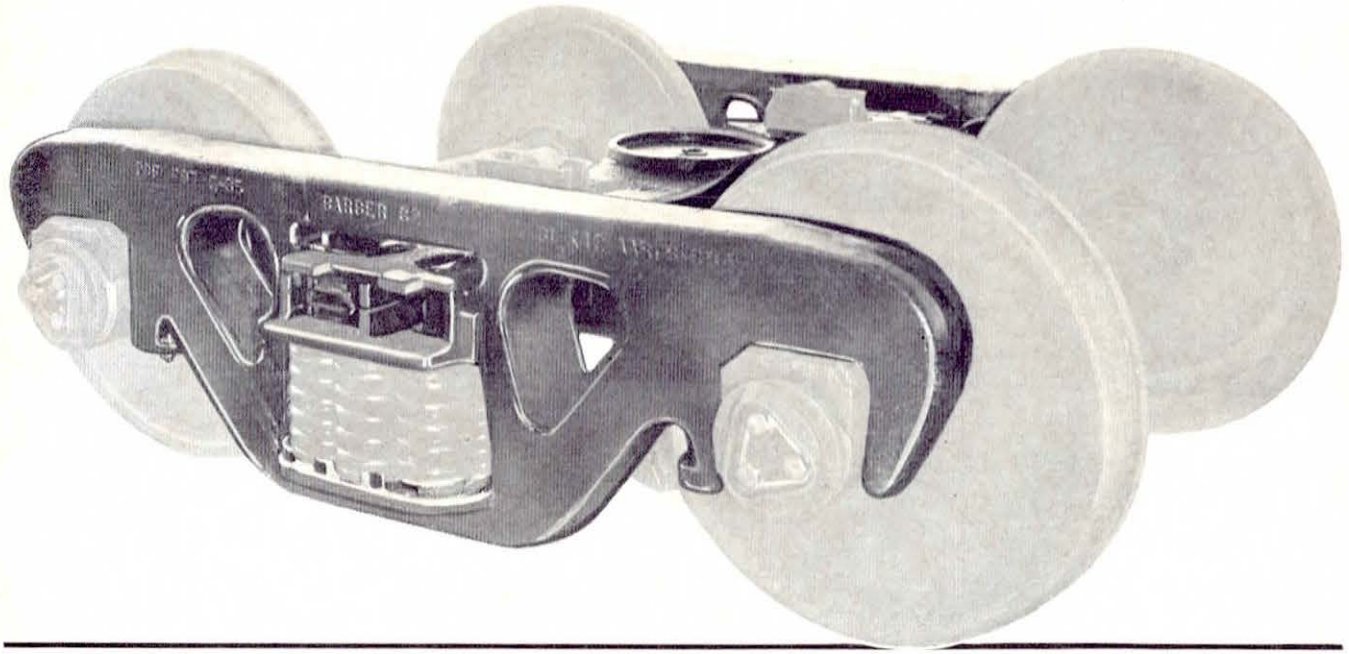
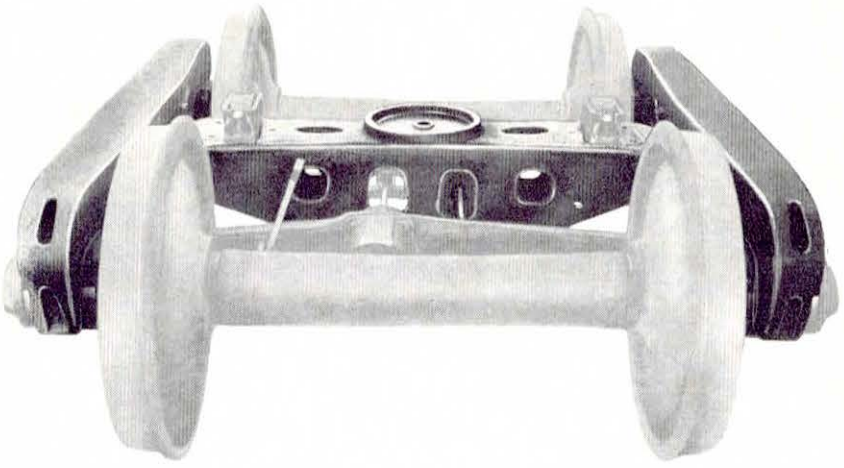
PITTSBURGH Side Frames and Bolsters

Sound for Strength, Accurate for Fit...
Sound and Accurate for Long, Trouble-free Life



Pittsburgh cast steel side frames and bolsters are designed for the best possible payload capacity, are produced by the most modern methods, carefully finished, inspected and tested to assure quality castings that will carry the heavy loads for hundreds of thousands of profitable miles. Car builders, railroads and private car lines specify dependable performance by specifying Pittsburgh.

For prompt delivery of reliable side frames and bolsters in all sizes . . . for service regardless of quantity . . . call Pittsburgh. Quotations upon request.



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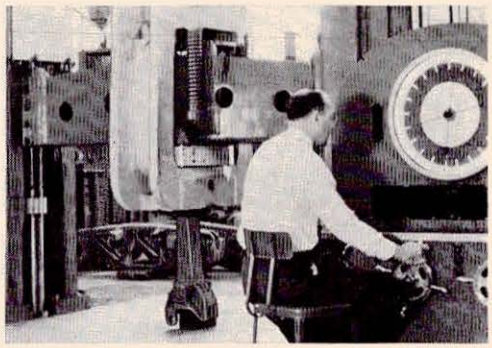

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- All-tone system permits dialing over 25 db line without repeaters.
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- PBX stations can signal any message station by dialing assigned code or digits.

To get complete details, address your inquiry to the Industrial Sales Dept., 128 Carlson Rd., Rochester, New York 14603.

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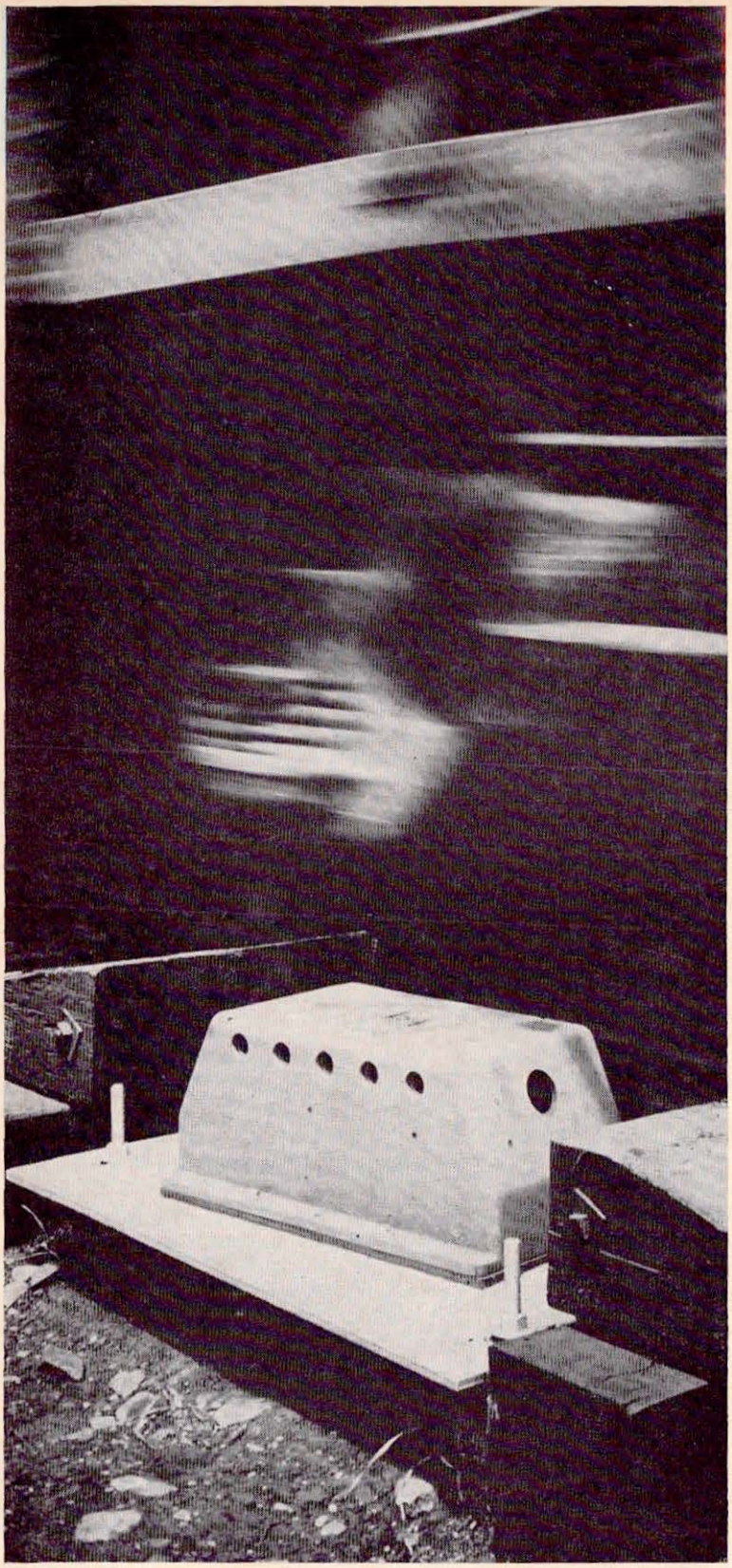

How to stop hot box derailments, damage, and delays

Back in 1956, Servo engineers perfected the technique of remote hot box detection by means of infrared. They looked at every conceivable location on and around the journal box for the most reliable indication of journal bearing heat. The best accessible area, substantiated by scientific tests made by the railroads themselves, proved to be the *trailing (and leading) surface of the journal box.*

Trailing (or leading) surface of journal box.

Tests prove that temperature of trailing or leading surface of journal box is proportional to temperature at journal-bearing interface. Presenting a low-mass path of thermal flux from the bearing, this surface rapidly reflects changes in the temperature of the bearing itself.

Based on the patented* *slant-aspect viewing* method, the sensitive infrared Servosafe® Hot Box Detective* diagonally "sweep scans" the entire trailing (or leading) surface of the passing journal box. Specifically designed to detect hot boxes, the Detective "feels" for hot boxes — and developing hot boxes — right at the source. The Servosafe system *consistently* catches dangerously overheated roller bearings as well as friction bearings . . . always sees the right target area . . . regardless of varying diameter of train wheels.

*Protected under one or more of the following U.S. Patent Nos.: 2,880,309; 2,963,575; 3,028,484; 3,095,171; 3,108,772; 3,108,773. Canadian Patent Nos.: 643,038; 643,091; 690,506; 690,907. Other U.S. and foreign patents pending.

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RAILROAD PRODUCTS DIVISION

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LETTERS FROM READERS

Finding the men

Evanston, Ill.

To the Editor:

With reference to your Monday Morning Report of July 12 and W. E. Homer's letter to the editor of Sept. 6, concerning the railroads and college graduates.

I have to agree with some of Mr. Homer's observations; I recently was in a similar position. Finding myself with over five and one-half years of college and approximately two years of rail experience, all in summer or cooperative school-industry jobs, I was looking for employment. Having thoroughly enjoyed my previous railroad work, I decided to survey the employment possibilities by interviewing a cross-section of the industry. For comparative purposes, I also interviewed a few non-rail companies.

During this period, I interviewed 10 major railroads, five in the East and South, and five in the Midwest and West. The most significant result of all this, I felt, was the extremes I encountered in terms of opportunity, general attitudes, pay and recruitment policies. Some of the roads were very professional in their approach and apparently eager to hire; others were quite indifferent. One road went so far as to say "We need men—how much do you want?" Another, almost reluctantly, said that they had an opening, but that they have had poor experience with college men, i.e., in effect, they are "soft."

The more progressive roads were generally in the same category as the non-railroad companies as far as salary, recruitment policy, etc.: they were in the market for men and they intended to be competitive in order to get their share. Three of the 10 roads could be termed "progressive," while four others were in a "semi-progressive" state, i.e., just beginning to move in this direction. The remaining three roads could be termed "conservative" — fitting quite well the picture that Mr. Homer painted in his letter.

I finally took a position with one of the 10 roads; but this is not really relevant. Rather, the significant point is that such extremes existed. The obvious question is "why?" A number of theories could no doubt be argued. However, it is interesting to note that the three "progressive" roads were all in the East. Two of the three roads have had serious financial problems; perhaps only with their backs to the wall were they able to break tradition and revamp their personnel policies and methods. The third road was in a class by itself, as it apparently had established sound recruitment and development policies years ago and has been reaping the benefits for some time.

Thus, it could follow that unless a company is gifted with a far-sighted management, it takes a threat to corporate survival to break tradition, to bring about change. . . .

Of course, there is nothing sacred about a college education—it guarantees nothing. But, it can be considered an indicator. If a man has done well in college, there is a good chance he will do well on the job. This aspect is certainly as important as any specialized training gained at school.

I strongly believe that this "manpower problem" is the biggest problem facing the railroad industry today. Only a few far-sighted managements have taken action. These roads are making substantial investments in manpower—building up staffs which can use today's tools and techniques to analyze markets, design and implement data systems, conduct pricing experiments, etc., and generally innovate in all the functional areas of the industry. . . .

To get the necessary men, both in quantity and quality, there are basically only two alternatives:

1. Actively recruiting at the college level—by offering opportunities competitive with other industries.

2. Periodically combing the ranks for bright young men and sending these men to college.

I doubt that one or the other method is sufficient, taken alone. Both courses of action must be aggressively pursued. To the individual company this would represent a long-range investment, perhaps the best investment any company could make. . . .

Julian S. Eberhardt

To the Editor:

In your Sept. 6 issue (pp. 29 and 32) W. E. Homer wrote you a very interesting epistle entitled, "RRs and College Graduates."

In reviewing Mr. Homer's critically objective essay, which basically is correct, I wish to point out the following:

1. A college education does mean a lot.

2. This is an exciting era of railroading; stick with it because the evolutionary and revolutionary changes are remaking the entire industry with opportunities numerous for those qualified to accept responsibilities.

3. The railroads are definitely increasing their tempo of hiring college graduates, summer college trainees, etc. Experience means a lot in this particular industry and to acquire this takes time. Although you may think you are beginning at the bottom of the ladder, and not in the position of a junior executive, a few short years of advancement will reveal how minor this differential actually is.

4. If the railroad you have been employed by during your summer vacations does not seem overly anxious to welcome you with open arms, apparently taking you for granted, etc., do not make the fatal mistake of considering this to be an indication of lack of interest. It may be lack of foresight only. If you honestly like railroading, do not let anything step in your way of seeking the best opportunity either with your summer employer, or some other carrier which may be more progressive.

In short, do not throw in the sponge too quickly!

T. M. Taylor, Jr.
Manager, Equipment Planning and Utilization
Louisville & Nashville

A stand on taxation

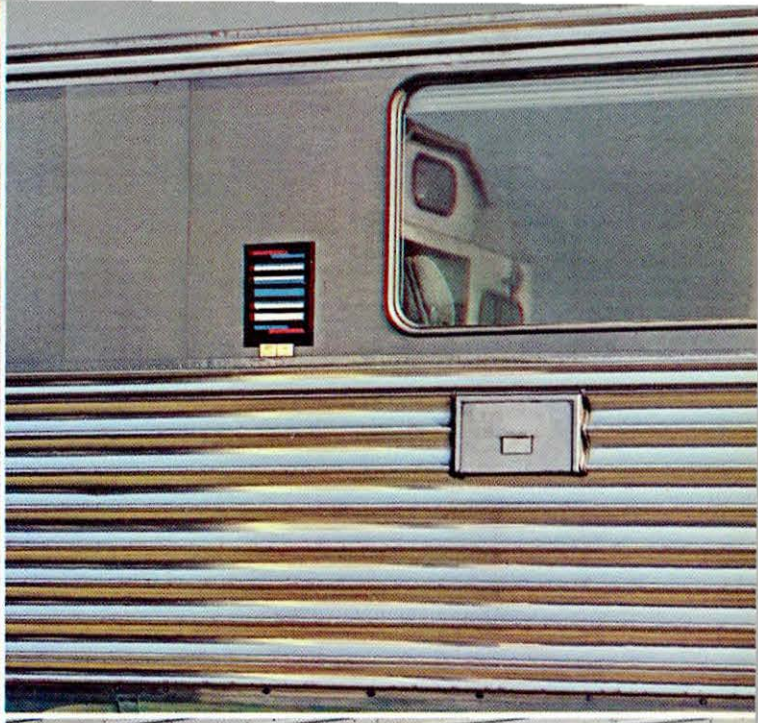
To the Editor:

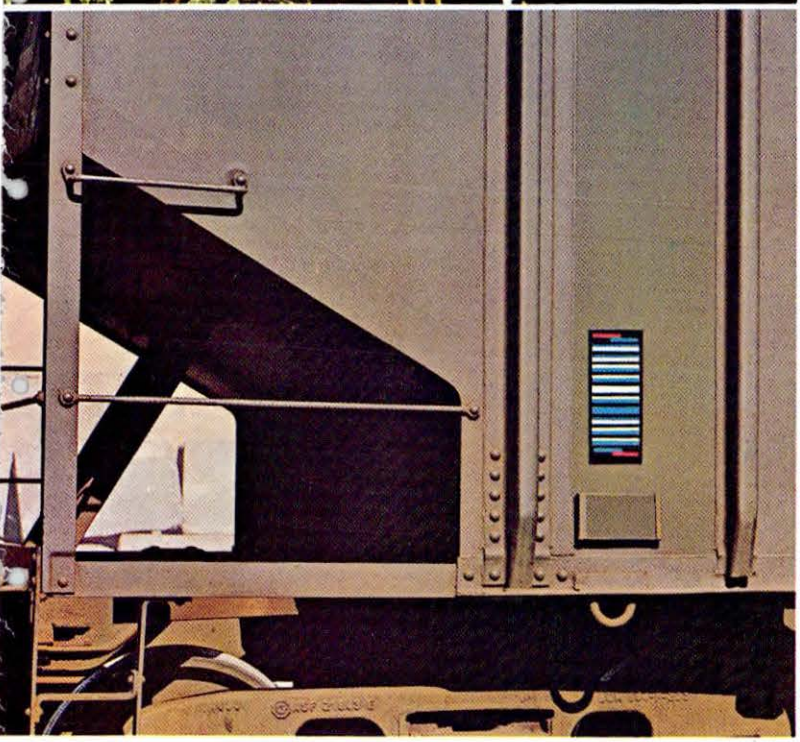
I was most pleased to see the editorial regarding the tax bill needing an industry push in the June 21 issue of Railway Age. Discriminatory taxation is still one of the major problems facing the railroads. I think you have done an excellent job summarizing the difficulty the industry faces in getting tax equality it deserves to get. State laws in most areas do provide for the tax burden to be shared fairly among all taxpayers, but it has been a long process to try and secure such equity from state tax administrators. This is especially true because of the political problem in reducing assessments for a group which has been long overburdened unfairly in the face of demands from local taxing units for additional revenues to meet increasing needs.

I feel this editorial will be of substantial value to the industry. I intend to utilize it as another means of showing the state administrators with whom I deal that there is a serious need for equity or other avenues for securing relief will have to be utilized.

Railway Age has done a fine job in explaining a complicated and difficult problem.

John F. Belt
Land & Tax Commissioner
Illinois Central





Tank cars, Budd cars, Gravel cars, Piggybacks— KarTrak reads them all!

Here's an ACI system that works with *any* kind of rolling stock—including piggyback vans.

There's nothing costly or time-consuming to mount on your cars. Just simple durable markings made of Scotchlite® reflective sheeting. They outlast regular stenciled identification.

It takes about 10 minutes to mark a car or engine or piggyback with the KarTrak* automatic car identification system. The material costs less than $1.50. And positioning isn't critical. The KarTrak System scans them all in a 6-foot-plus range.

You'll find the KarTrak System as reliable as it is simple. Wayside scanners read the reflective markings through heaviest rain, sleet, snow or fog. At 80 mph—or at a slow crawl.

Regardless of conditions, you get "instant inventory" from accurate, convenient print-out equipment.

The KarTrak System has been proved reliable in nearly four years of testing on the Boston & Maine—and in commercial applications operating in captive ore hauling service. We'd be pleased to tell you more. Simply write to The KarTrak System, Sylvania Electric Products Inc., P.O. Box 268, Bedford, Massachusetts 01730. Or call 275-0300. (Area Code 617)

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NEW YORK CENTRAL SYSTEM

ALFRED E. PERLMAN, PRESIDENT
New York Central System

"Railway Age continues to be an important factor in today's railroad industry, just as it has been in the past. Whether the news be of new freight cars, better track, improved marketing or phenomenal new computers, people in and out of the railroad industry can count on Railway Age to help them keep abreast of the many exciting changes taking place every week in transportation."

Alfred E. Perlman

1843 WAS A VERY BIG YEAR FOR US

THE JOHN BULL *is the oldest complete and operable locomotive in the United States. Built in England in 1831, it was first placed in service at Bordentown, New Jersey, on the lines of the Amboy Rail Road and Transportation Company. The John Bull was in its heyday in 1843.*

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EAGLE EP PICHER Since 1843

and have they grown! Eagle-Picher today is noted as a manufacturer with a diversity of talents and interests spanning the modern industrial spectrum. RACON is growing, too. And we're proud to have Eagle-Picher as exclusive manufacturers of RACON products. Eagle-Picher has experience, know-how, standards of quality, and reliability that won't quit —haven't quit in 122 years of progress.

By comparison, we're very young. But we're enthusiastic, hardworking, and market-minded. And we admit we're specialists. RACON products are designed and developed expressly for the railroad industry, to solve today's problems and meet tomorrow's needs. Lines throughout the United States are specifying and buying our equipment. Write today for details.

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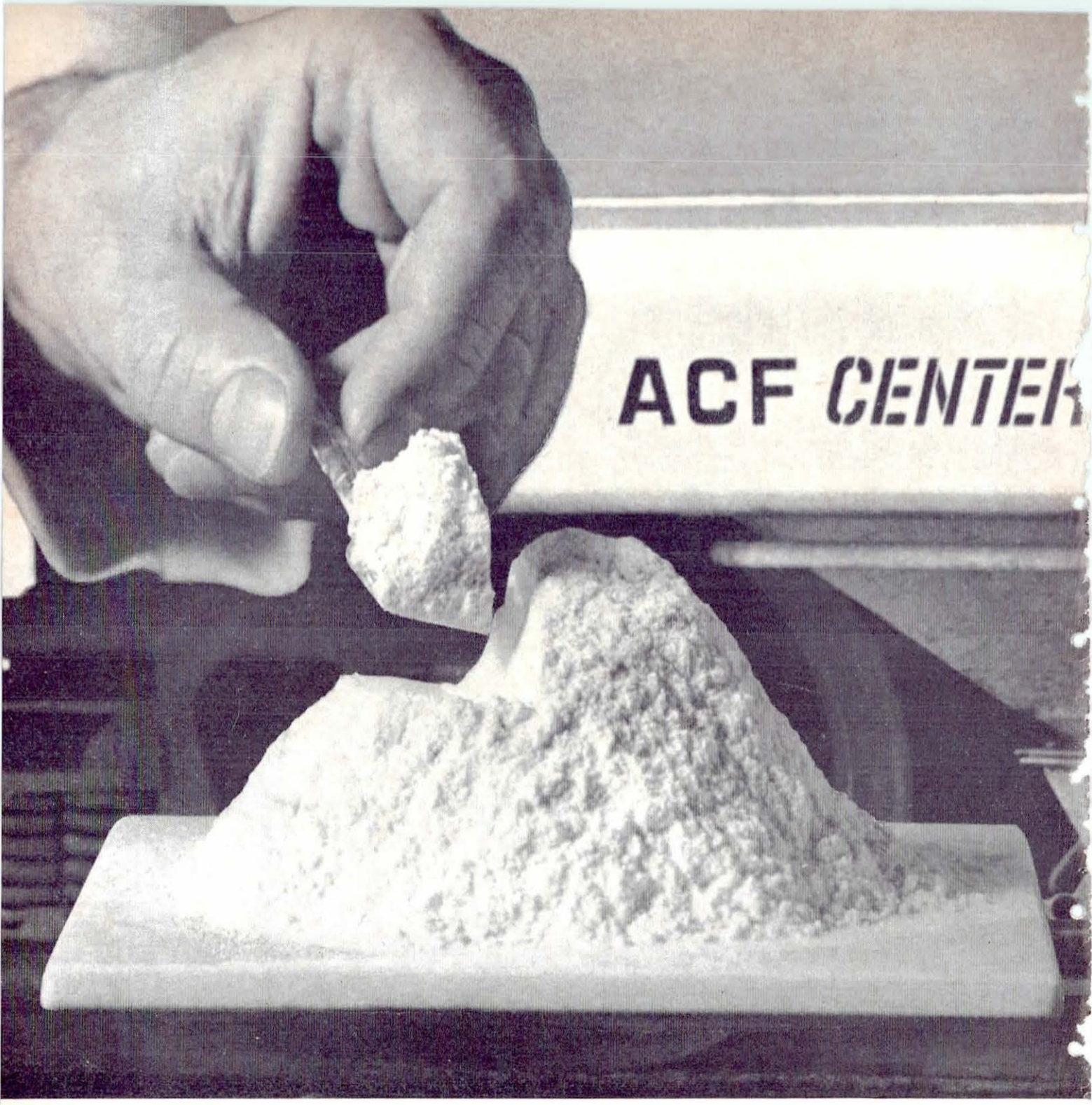

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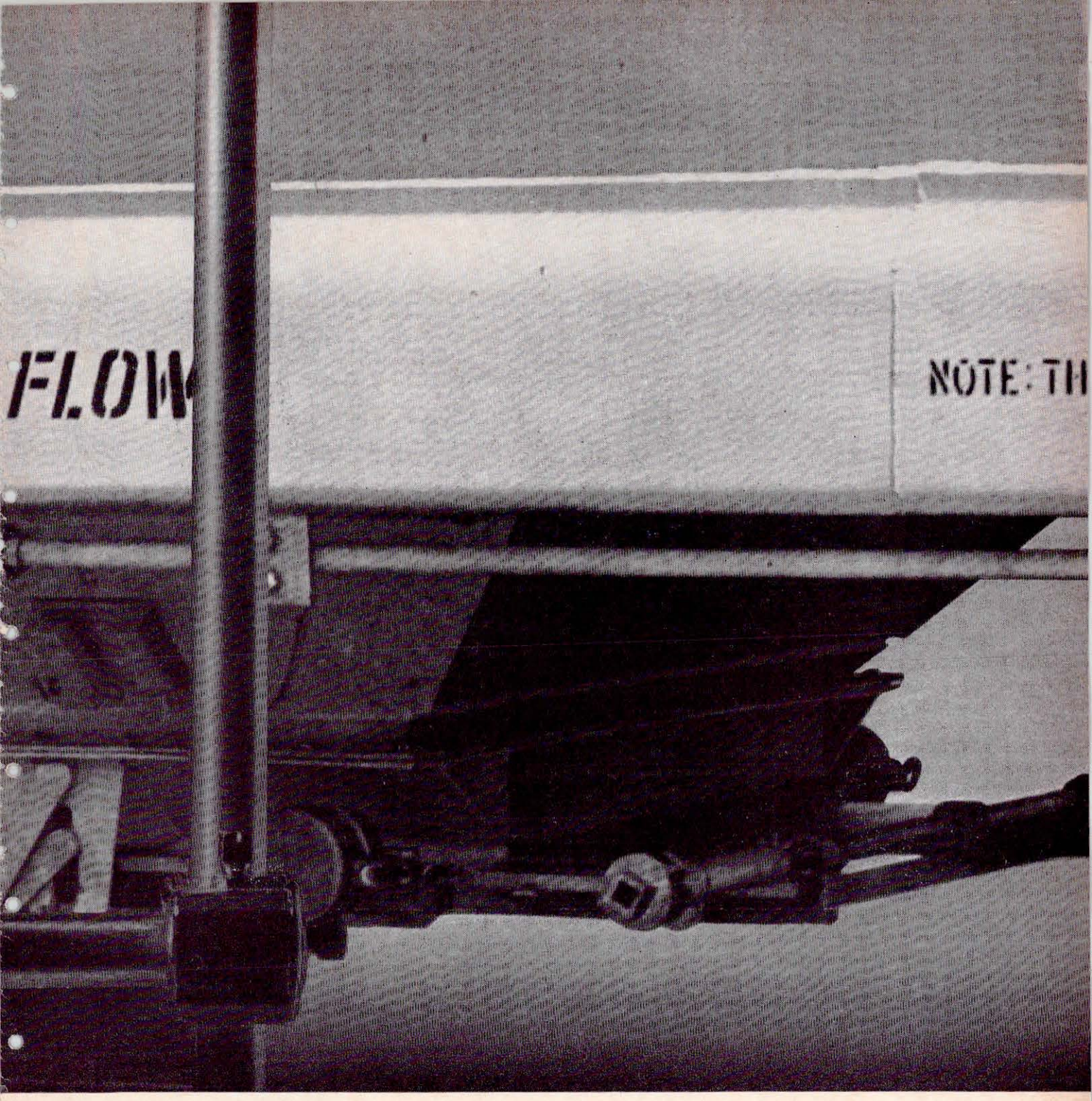
ACF fluidizing outlets on Center Flow™ cars can markedly increase your profit potential in the bulk powder market.

The new ACF fluidizing outlets are fully compatible with existing receiver facilities. They expedite unloading by introducing air into the lading to make it "flow" like a liquid. They provide sanitary handling, maximum efficiency of discharge.

Just as important, you get all the other versatile advantages of Center Flow cars for bulk powder handling: high capacity, clean bore design, reduced maintenance, easier cleaning.



specialized cars for unloading compacted powders

Investigate the savings you can make by using Center Flow cars with new ACF fluidizing outlets in your bulk powder market. Write to American Car & Foundry Division, ACF Industries, Incorporated, 110 Clark Street, St. Charles, Missouri 63301, or our sales offices in Chicago, Philadelphia, St. Louis, San Francisco, Washington, D.C.

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With men who know their locos best...

...like Gordon H. Kendall, General Superintendent of Motive Power for the Louisville and Nashville Railroad, for example. He knows the kind of guts it takes for locomotives to meet gruelling schedules...day in and day out. Schedules which involve the hauling of heavy coal trains...on time...over heavy grades without doubling.

That's exactly what Century 420's do for the L&N. Kendall refers to these ALCO four-axle, 2000 hp units as "work-horses." Here's what he reports, "Operating in consist, five of our 420's do the work that formerly required seven 1500 hp units."

Expensive to maintain? Hardly! Powered by mighty ALCO 251 diesels ...prime source of energy for all Century locomotives. Engines that provide effective performance under all kinds of operating conditions. Engines that thrive on standard railway lubricants. And because of higher thermal efficiency, they deliver more — much more — power from every gallon of fuel consumed at lower maintenance costs.

Of course 420's, like all Century models, place less parasitic load per horsepower on their engines than any other locomotives in railway service today. In fact, the entire range of Century motive power (from 2000 hp to 5500 hp) gives any railroad plenty of reason for specifying ALCO. Feature-for-feature and dollar-for-dollar, they've outperformed any other locomotive you could buy.

So why not ask Gordon Kendall...or other men who know their locos best...about ALCO Century's. Then you won't have to take our word for it. You'll know!

On the basis of ton miles per gallon, per dollar, per unit — no other locomotives are meeting ALCO Century performance standards.

Century 855...5500 hp; Century 643-H...4300 hp diesel-hydraulic; Century 630...3000 hp; Century 430...3000 hp; Century 628...2750 hp; Century 425...2500 hp; Century 424...2400 hp; Century 420...2000 hp; DL-440...1000 hp.

Your ALCO man has complete information on all Century models... America's first full-range series of modern motive power.

New 3000 hp locomotives join ALCO's Century fleet

Century 630. AC Rectified Transmission ...six axles...six motors

Century 430. AC Rectified Transmission ...four axles...four motors

In the Century 630 and 430, ALCO has replaced the conventional DC generators with AC alternators that are easier to protect and insulate. This innovation eliminates all generator commutator problems...reduces the size and weight of generating equipment. And, since there are fewer moving parts, such as drive gears, belts, slip rings and brushes, maintenance is greatly reduced. Solid-state silicon rectifiers convert AC to DC for the DC traction motors. The capabilities of this system eliminate traction-motor field shunting.

The prime source of power for both the Century 630 and 430 is the "E" version of ALCO's *proved* and *improved* Model 251 diesel engine. Vee type. 16 cylinders. Four cycle. 9-inch bore. 10½-inch stroke. Rated 3000 hp for traction. Features a newly-designed aftercooler for better engine aspiration...is supercooled by a separate radiator system.

With the advent of the AC alternator in Century units, ALCO becomes the only domestic locomotive manufacturer to offer three power transmission systems: direct-current, rectified alternating-current, and diesel hydraulic.

ALCO

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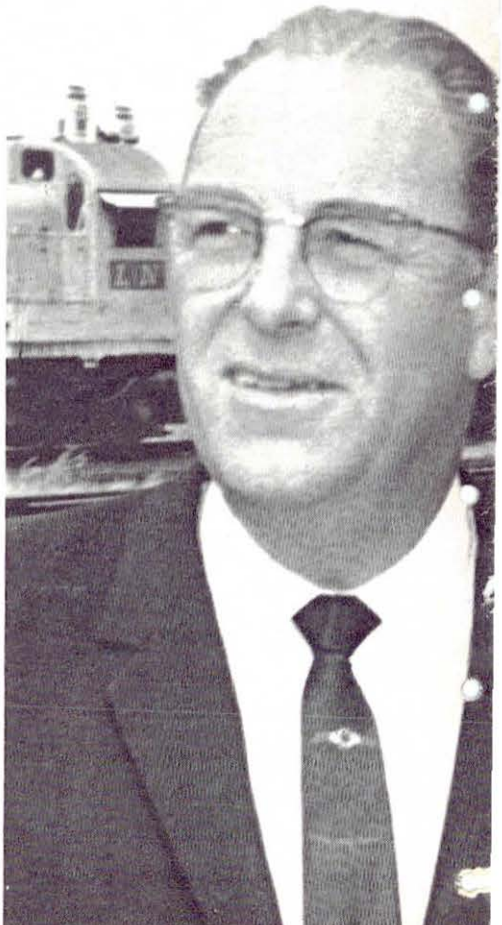
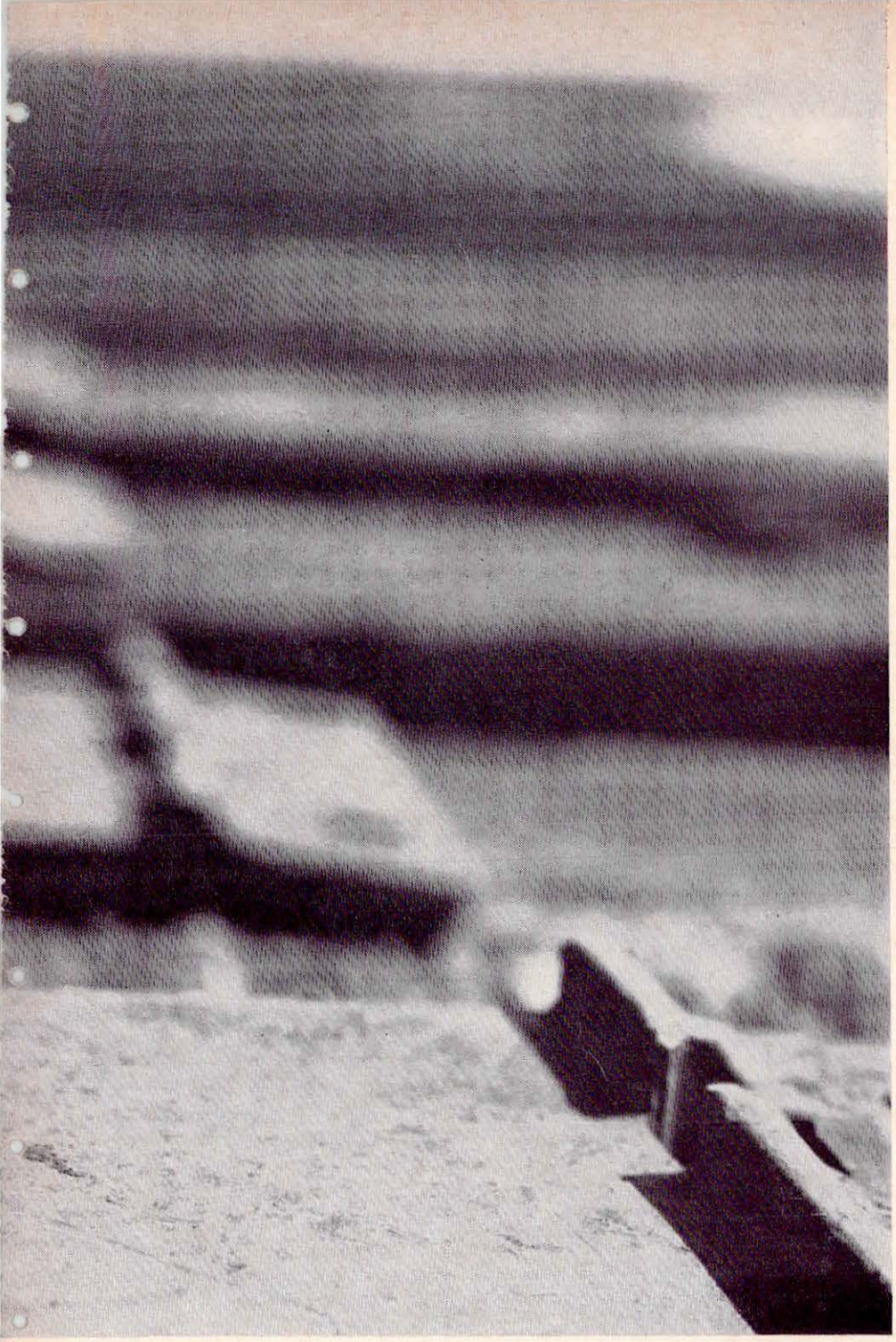
530 Fifth Avenue, New York, N.Y. 10036



1305
1305
L&N

Buy it. Lay it. Forget it.



CF&I rail, accessories

That's about the size of it. With CF&I Rail, once it's down you can forget about it. For years and years.

Reason? You select the type of rail and the section to meet your road's needs or preferences. To keep pace with today's increasing loads lay standard CF&I Rail. For heavy wear on grades or curves—or excessive wheel load conditions—there's CF&I Hi-Si® Rail.

CF&I's 136, 119 and 106 lb. sections, Hi-Si, basic oxygen steel rail . . . all were pioneered in cooperation with the railroad industry. A working partnership we intend to continue. The Colorado Fuel and Iron Corporation, Denver, Colo.

CF&I STEEL

D-279

General Electric designed and installed the country's largest private microwave system

MICROWAVE COMMUNICATION is the new dimension in fast, dependable railroad service. And Southern Railway, in its spirited determination to be of ever-increasing usefulness to customers, has in use along its lines today the nation's largest privately-owned industrial microwave system.

What's more, plans have already been announced to more than double the present system of 1,900 route miles by an additional 2,200 route miles.

Total cost of this modern, reliable, all-weather communications medium will be about $28 million. Southern looks on this as an *investment* in an even safer, even more efficient and reliable railway. Microwave speeds up our system of keeping tabs on the availability of equipment and on the movement of freight. It helps us *keep* freight moving on the demanding schedules our customers require. Overall, it means better, lower-cost, more useful service on Southern Railway.

Adapting new and better methods to railroad operations, or creating them ourselves, is putting "Southern's accent" where it belongs — on the things that help us increase our usefulness to customers. All in the South benefit.

D. W. Brosman
PRESIDENT

Southern Railway System
WASHINGTON, D. C.

SOUTHERN RAILWAY SYSTEM SR SERVES THE SOUTH
LOOK AHEAD: LOOK SOUTH

We'll also be glad to develop the smallest (or anything in between). How about your requirements?

Whether you require a large microwave system like the Southern Railway, or a small "two-hopper", General Electric incorporates the latest design technology, and the same care in manufacturing and installation. For information, see your G.E. communications consultant. He's listed in the Yellow Pages under "Radio Communications". Or write: General Electric Company, Communication Products Department, Section 34105-11, Lynchburg, Va.

Progress Is Our Most Important Product

GENERAL ELECTRIC

Patent Process Applied For

Sign consists of two 1-piece blades of glass reinforced high impact resins. Weight approximately five pounds per blade. Background color white with raised black letters for high visibility. Other color combinations are available to meet various state laws. Reflectorized background.

NOW YOU CAN ORDER MAINTENANCE FREE MULTIPLE TRACK SIGNS *Too* IN CUSTOM MOLDED FIBERGLASS BY WINE

Last October we began marketing a product quite different from the cast steel railway appliances which Wine has been making since 1912. The new product was a maintenance free Crossbuck sign. Its unique features and high quality quickly helped to make it a well received and popular addition.

In fact, your favorable comments, together with purchase orders, encouraged us to "branch out" a little more. Which means, we have added a Multiple Track sign to go with the 'Railroad Crossing' sign.

These new signs, like the 'Railroad Crossing' signs, are also molded out of glass reinforced high impact resins. Background may be had white or black with raised 4" high letters in a contrasting color for maximum visibility. Overall sign size is 27" x 17" with 6" high numeral. Background is reflectorized.

Write today for full details—or see your Wine sales representative.

"Another quality product by Wine . . . leading producer of cast steel appliances for the car building industry and railroads since 1912."

THE WINE RAILWAY APPLIANCE CO.

DIVISION OF UNITCAST CORPORATION • TOLEDO, OHIO 43609
Canadian Manufacturing Division: *Canadian Unitcast, Ltd.*, Sherbrooke
Sales and Service: *The Holden Co., Ltd.*, 614 St. James St., W., Montreal

WINE RAILWAY APPLIANCES

RAIL PROGRESS RPI MEMBER

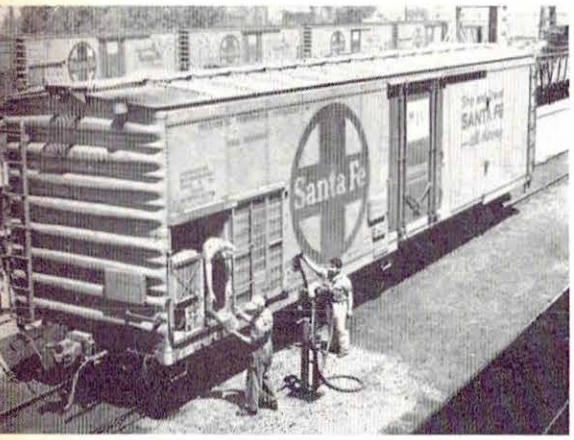
ATCHISON, TOPEKA & SANTA FE operates 84,000 freight cars on 13,000 miles of track, stretching from the Great Lakes to the Pacific and from

"Santa Fe—always on the

Santa Fe accepts the challenge of rising operating expenses and competition from other modes of transportation with the vigor that has made it one of the nation's leading roads. A pioneer in the development of specialized cars, Santa Fe annually carries out a multimillion dollar program of building new rolling stock to offer shippers and passengers a complete, customized transportation service.

To improve handling of shippers' products, Santa Fe added its own design Shock Control cars, which have set records for safe movement of fragile freight; MTC cars, which control interior temperatures from zero to 70°F; and tri-level Autoveyor cars developed by the Santa Fe for use in automobile shipment. For passengers, the road added 55 cars including an improved version of its Hi-Level car.

As a prominent aid in operating and maintaining that stock, Mobil offers Santa Fe—and other roads—Mobil diesel fuel, Mobil lubricants and most important, Mobil experience. Mobil men average over 25 years' experience, understanding not only petroleum products, but railroading, too. They're armed with proven products, complete technical information,



MECHANICAL TEMPERATURE CONTROL cars like these are capable of keeping 59 tons of perishable freight at any temperature between zero and 70°F. The mechanical refrigeration units are driven by Mobil-lubricated diesel engines.

SHOCK CONTROL CARS developed by the Santa Fe are setting records for miles of damage-free freight movement. Hydraulic heart of the mechanism is filled with Mobiloil Special, because of its wide temperature performance.

PIGGY-BACK is a rapidly growing service on all parts of the Santa Fe system, and is operated in co-operation with some 200 motor carriers. Here, oiler checks level of Delvac® Special in diesel engine

the Colorado Rockies to the Gulf. These giant diesels are ready to pull a fast freight from Corwith Yard, Chicago, for a 60-hour run to California.

move toward a better way"

a network of strategically located supply points, and a policy of providing special personal service in working on specific customer problems.

Among other indications of Santa Fe's progressive attitude shown in 1963: the rapidly expanded piggy-back operation and the development of a microwave communications network to extend from Kansas City to the Coast.

The Santa Fe's determination to provide precision transportation should add even more luster to its reputation as one of the most advanced—and most successful—railroads.

Mobil

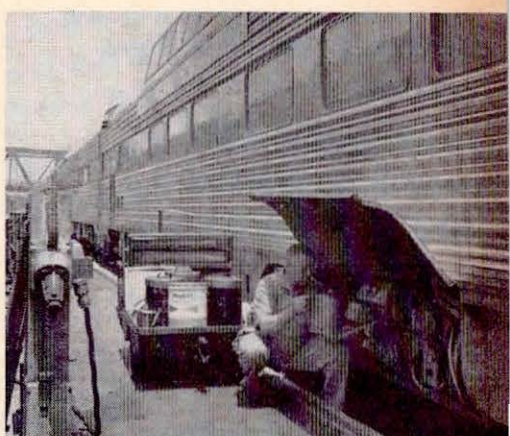
RAILROAD PRODUCTS

99 years of helpful association with America's Railroad Industry

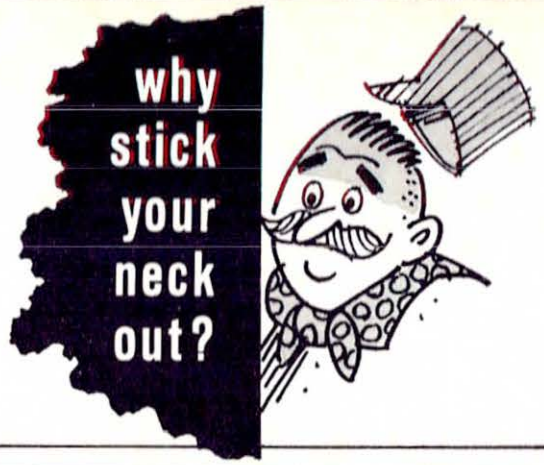
Mobil Oil Company, 150 E. 42nd St., New York 17, N.Y. · 59 East Van Buren St., Chicago 5, Ill.

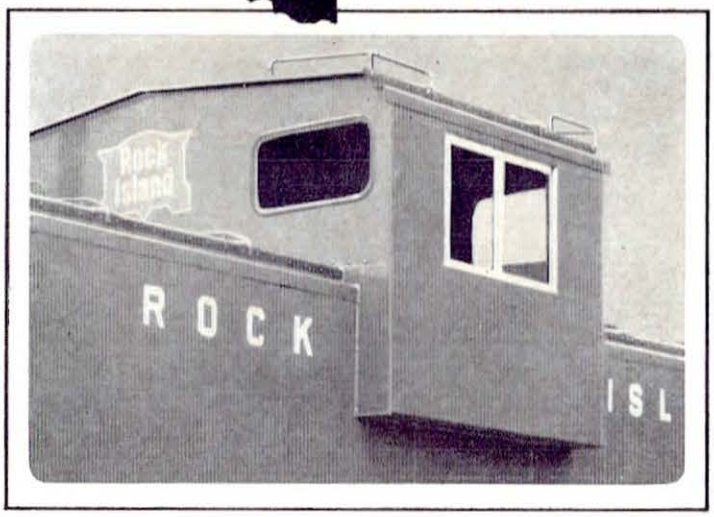
on refrigeration unit for one of Santa Fe's own piggy-back trailers. Besides lubricating oils, Mobil supplies Santa Fe requirements for diesel fuel and specialty products such as Mobil curve grease.

TRI-LEVEL AUTO-VEYORS, first built in Santa Fe shops in 1960, changed the method of transporting new automobiles. Tri-level car carries 12 standard or 15 compact vehicles. Each is equipped with Shock Control mechanism, filled with Mobiloil Special.



SUPER CHIEF features a unique Pleasure Dome Lounge Car with its famous Turquoise Room for private dinner parties. Air-conditioning and electrical plants for these lounge cars are powered by Delvac S230-lubricated diesel engines.





You don't have to in an International

EXTRA WIDE VISION CABOOSE

Today's trend toward higher, wider freight cars gives a trainman two alternatives. He can stick his neck out — or — ride comfortably and safely in an International Extra Wide Vision Caboose.

Railroads with vision are going this route.

If you seek greater efficiency from your crews plus greater economy of operation, look into International Cabooses. If you don't see what you want, we'll build them to your specifications.

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E. J. Hasten, Jr., W. B. Reed — Chicago, Ill.

A NATIONWIDE LEASING COMPANY Subsidiary

PEOPLE

ATLANTIC COAST LINE.—L. E. Bates, chief engineer—construction, Jacksonville, Fla., retired Oct. 1, after more than 43 years of service with the ACL.

AMERICAN SHORT LINE RAILROAD ASSN.—James I. Collier, Jr., general counsel and secretary—treasurer, Washington, D.C., elected vice president and re-elected general counsel and secretary—treasurer. Mr. Collier succeeds **John H. Jester,** vice president, who retired Oct. 1 after more than 31 years service with the Association in various positions from assistant traffic manager to vice president.

CANADIAN PACIFIC.—J. L. DiFruscia appointed assistant manager — freight rates, system, rates and divisions, Montreal.

CHESAPEAKE & OHIO—BALTIMORE & OHIO.— The following joint C&O-B&O passenger department appointments have been made as a result of consolidation (former positions in parenthesis):

Regional managers—passenger sales—**Harold E. Coppage,** Washington, D.C. (regional manager—passenger sales, B&O, Chicago); **Harold M. Wilson,** Chicago (district manager, C&O, Grand Rapids, Mich.); and **Howard H. Lehkamp,** Cincinnati (same capacity there, B&O only).

District managers—passenger sales—**A. Bruce Mason,** Washington (district manager, C&O, Washington); **John S. Keneski,** Chicago (district manager, B&O, Pittsburgh); **George T. Murray,** Baltimore (same capacity, B&O only); **Frank E. Knotts,** New York (same capacity, C&O only); **James A. Milburn,** Richmond, Va. (district manager, C&O, Norfolk); **Dan R. Rathsack,** Ludington, Mich.; **Charles H. Pergrem,** Pittsburgh (same capacity, C&O only, Lexington, Ky.); **L. J. Hacker** and **Gibson Seward,** Detroit; **Robert B. Harris,** Huntington, W. Va. (same capacity, C&O only); **John A. Frazier, Jr.,** Louisville, Ky. (same capacity, C&O only); and **Richard W. Ferkler,** St. Louis (same capacity, B&O only).

Assistant district manager—passenger sales—**Joseph C. Bane,** New York (district manager, C&O, Charleston, W. Va.).

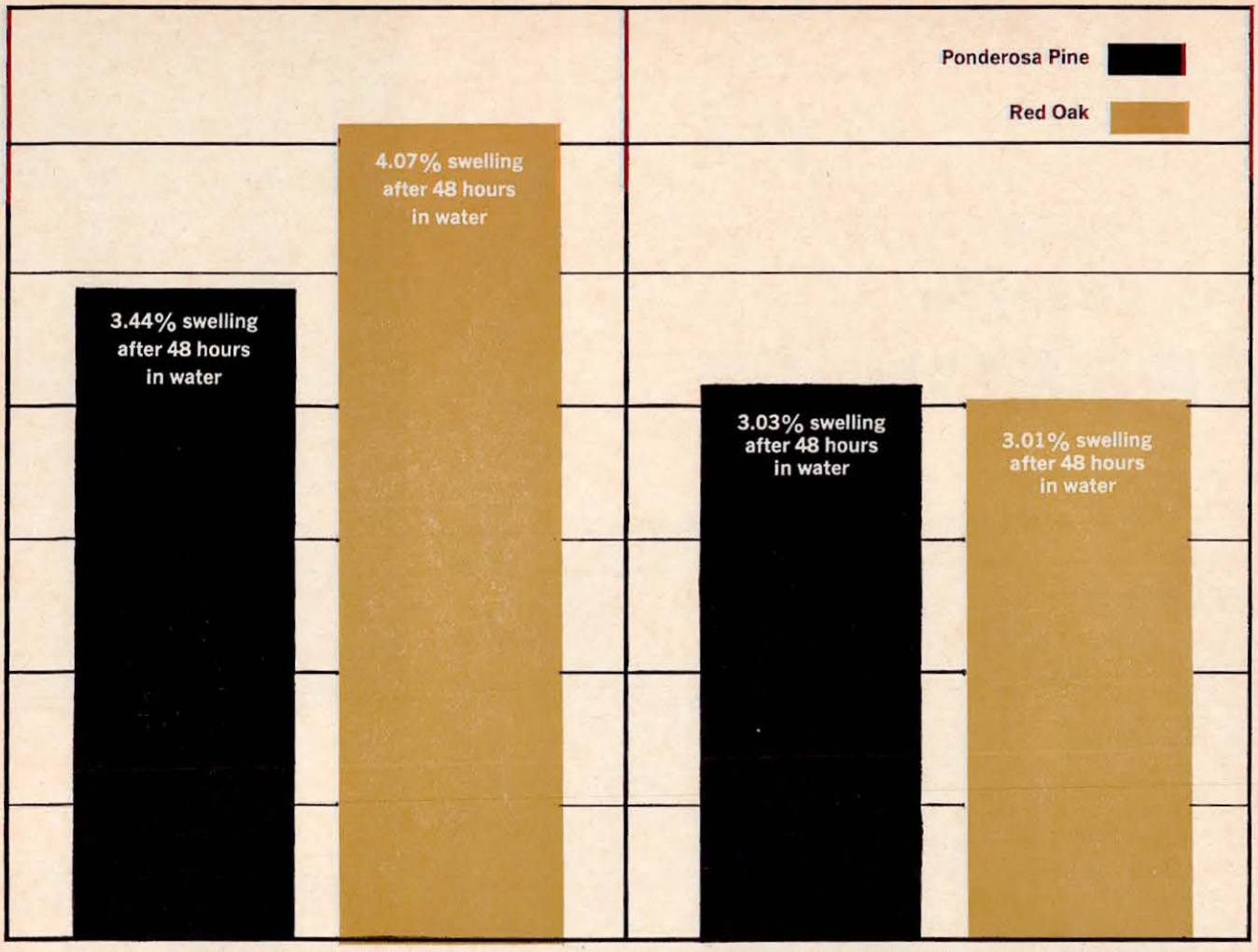
ERIE LACKAWANNA.—Gregory W. Maxwell, senior vice president, elected president and **Fred Diegtel,** vice president—labor relations, elected vice president—operations and maintenance, both remaining at Cleveland (RA, Oct. 4, p. 36). **William White** will continue as chairman and chief executive officer, New York.

Mr. Maxwell served the New York Central for 20 years before going with the Terminal Railroad Assn. of St. Louis. He was president of the latter road before joining the EL on July 1, 1963, as vice president—operations and maintenance.

Mr. Diegtel began his railroad career with the Lackawanna and was assistant vice president of operations prior to merger in 1960.

FLORIDA EAST COAST.—L. W. Flynt, manager of stores, St. Augustine, Fla., retired Aug. 31, after 42 years of continuous service. Responsibility for operation of the Stores Department, under direction of **S. D. Smith,** general superintendent motive power, has been assigned to **J. A. Waide,** appointed superintendent maintenance of equipment and stores, St. Augustine.

(Continued on page 60)


Ponderosa Pine
Red Oak
3.44% swelling after 48 hours in water
4.07% swelling after 48 hours in water
3.03% swelling after 48 hours in water
3.01% swelling after 48 hours in water
Wood treated with conventional preservative
Wood treated with conventional preservative and SHELLWAX WT

IMPORTANT TEST RESULTS:

Chart shows how wood specimens treated with new SHELLWAX WT for railroad ties resist swelling for fewer checks, fewer splits, longer life.

For every mile of track, your railroad probably spends at least $220 a year to replace split, checked and rotted ties.* Now SHELLWAX® WT can help cut this enormous tie-replacement bill by helping conventional creosote-coal tar preservative to do a better job.

Here are three ways a mixture of SHELLWAX WT and conventional preservative can give ties extra protection and extra life.

1. Less checking and splitting. A mixture of SHELLWAX WT and conventional preservative reduces the absorption of water into wood that causes checking and splitting. (See chart.) So checks and splits are far less likely to occur.

2. Less preservative loss. SHELLWAX WT reduces the loss of conventional preservative from wood due to weathering. As a result, the preservative can give your ties protection longer.

3. Improved penetration in tests. In a commercial test, the penetration of conventional preservatives into red oak ties was substantially increased in the presence of SHELLWAX WT. This improved penetration helps ties get extra protection.

Mail the coupon at right for a free report on how SHELLWAX WT can help your railroad get extra years of service from ties. Mail now to start saving sooner on maintenance.

*Estimate based on replacement of 50 ties per mile annually and on these minimum costs: wood, $1; preservative treatment 40 cents; labor $3 for each tie you replace.

GEARED TO PROGRESS RPI MEMBER

Shell Oil Company
Railroad Sales Dept.
Room 3844
50 West 50th Street
New York, N. Y. 10020

SHELL

Please send me a detailed report on how new SHELLWAX WT helps conventional preservatives to do a better job of protecting railroad ties.

NAME_____

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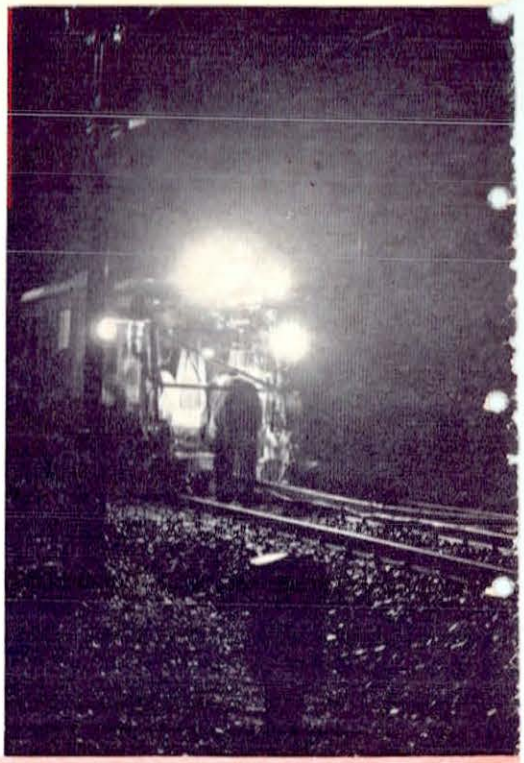
PLASSERMATIC

paves the way for

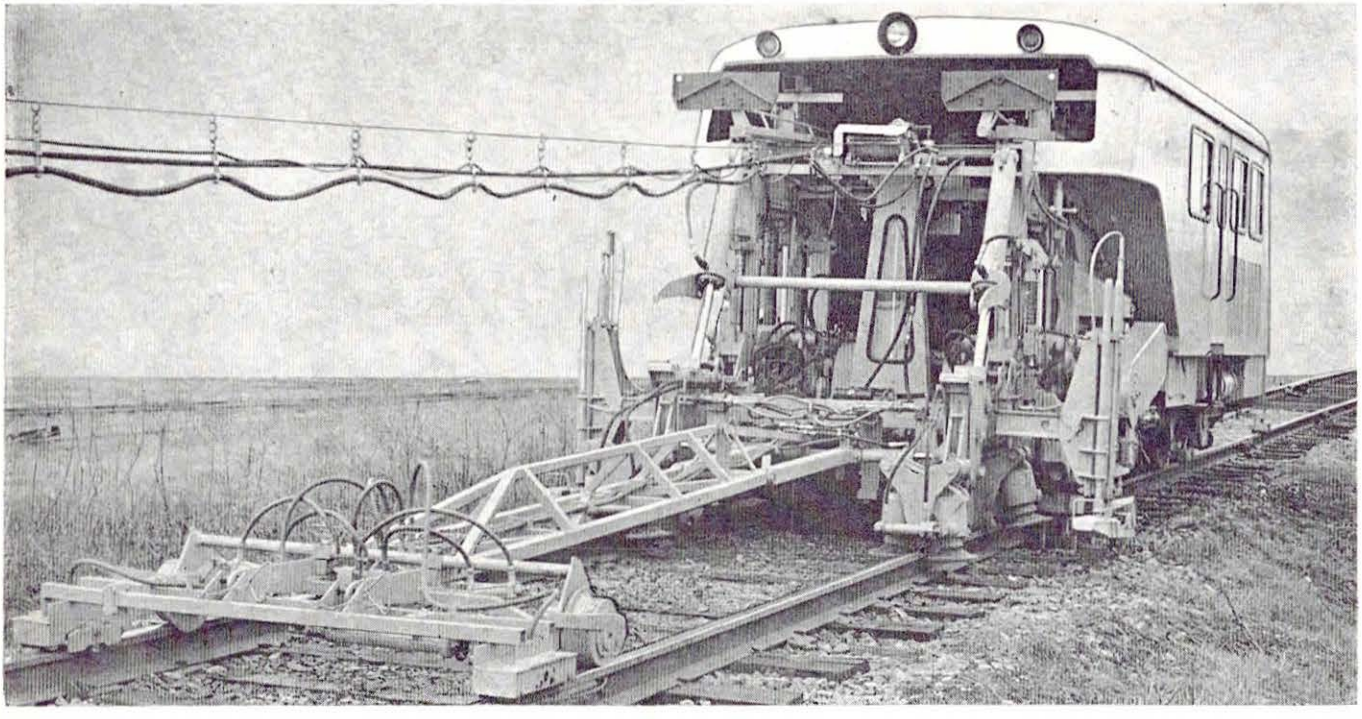
SPEED!

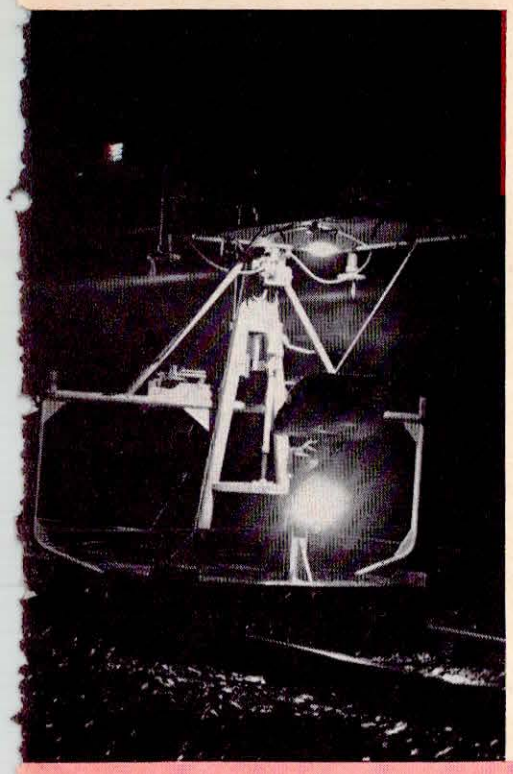
The WE-275 main-line and turnout tamper.



The VKR 05 lifts, levels and tamps.

PREPARING TRACK



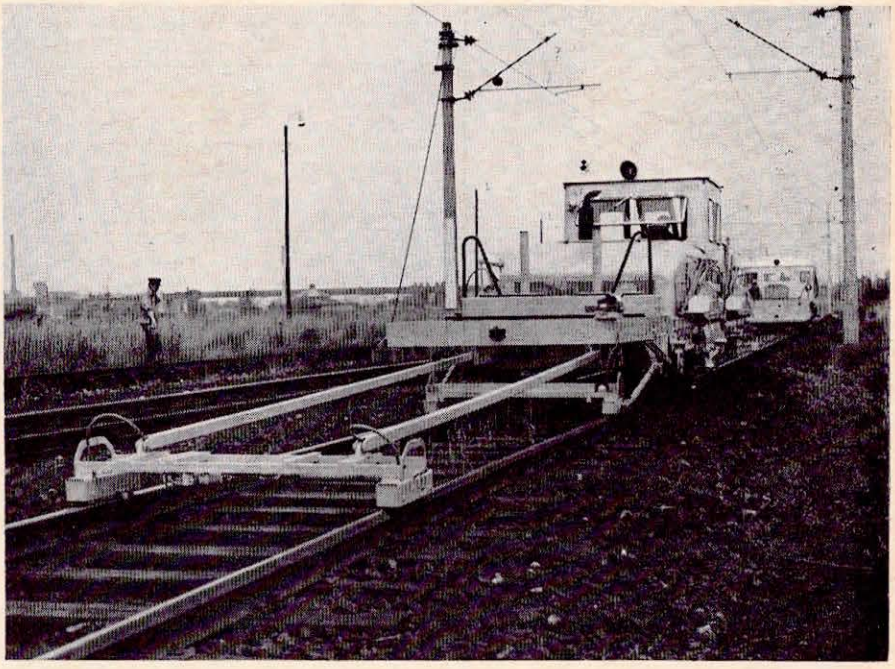


PLASSERMATIC

means high-speed machines that give

QUALITY TRACK

FOR 125 MPH



The AL 203 automatic track-lining machine.

Objective: High-Speed Track

The German Federal Railway wanted to get its line between Munich and Augsburg into shape for train speeds of up to 200 kilometers per hour (125 mph). This meant that the track had to be brought up to the highest possible standards of line and surface. Plasser machines were selected exclusively for this exacting task. Because of traffic they had to work largely at night (see photo above). Plasser equipment was chosen because it is designed to give precision results at minimum cost.

A similar operation involving the use of Plasser machines is now in progress on the East Coast of the United States.

◀ The Duomatic 06-32L lifting, levelling, tamping, lining machine. Tamps two ties simultaneously.

Plasser Railway Maintenance Corporation
2 N. Riverside Plaza, Chicago, Ill. 60606
Area Code 312/263-2829

Plasser Machinery Corporation, Ltd.
2705 Marcel Street, Montreal 9, Quebec
Area Code 514/Riverside 8-6761

PLASSER & THEURER
RAILWAY MACHINERY

Unequaled!

KLASING

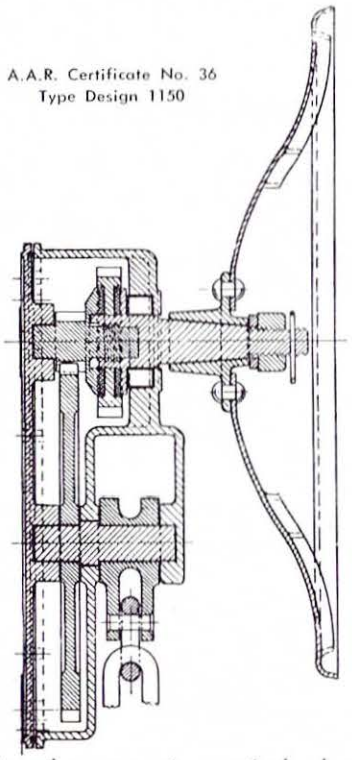
Sealed Type

HAND BRAKE

(PATENTED)

LUBRICATED FOR LIFE
at time of manufacture

A.A.R. Certificate No. 36
Type Design 1150



No other non-spin, vertical wheel railroad car hand brake offers this combination of outstanding features:

- SEALED-IN LIFETIME LUBRICATION ELIMINATES NEED FOR PERIODIC SERVICING
- SEALED ROLLER BEARING PROVIDES SMOOTH, ALMOST EFFORTLESS OPERATION. ABSORBS VIBRATION OF WHEEL SHAFT WITH LESS WEAR THAN SLEEVE TYPE BEARINGS
- STURDILY CONSTRUCTED OF SAE 1045 FORGED STEEL COMPONENTS
- PRESSED STEEL HAND WHEEL
- ZINC PLATED CHAIN GIVES INCREASED CORROSION RESISTANCE

Write, wire or telephone
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7 S. Dearborn St., Chicago 3, Ill.
Telephone: 236-3526
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20 Henderson Ave., Joliet, Ill.
Telephone: 722-8613

James I. Collier, Jr.
ASLRRA

Gregory W. Maxwell
EL

Fred Diegtel
EL

Robert D. Carver
Santa Fe

(Continued from page 56)

INTERSTATE COMMERCE COMMISSION.—**Henry F. White** appointed regional director, Bureau of Operations and Compliance, Columbus, Ohio, effective Dec. 1, succeeding **Roy M. Snetzer,** who will retire Nov. 30 after 29 years of ICC service. Mr. White is district supervisor of the Bureau in Wheeling, W. Va.

MILITARY TRAFFIC MANAGEMENT & TERMINAL SERVICE.—**Col. Armour S. Armstrong,** USA, deputy director of freight traffic, appointed director of Household Goods operations, succeeding **Col. James E. Branigin,** USA, who will retire Nov. 30 after nearly 25 years of service.

MILWAUKEE.—**F. G. Benner** named division engineer, Chicago Terminals and Terre Haute divisions, Bensenville, Ill., to succeed **M. B. Kaufman,** who retired Oct. 1 after more than 40 years' service.

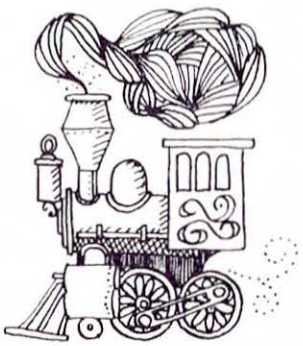
MISSOURI PACIFIC-TEXAS & PACIFIC.—**Robert D. Pierce,** general agent, Kansas City, Mo., appointed assistant traffic manager there, to succeed **J. Jeff Richey,** who retired Sept. 30 after more than 46 years of service. Mr. Pierce's successor is **Richard A. Lundgren,** general agent, Wichita, Kans., who in turn is succeeded by **Randolph R. Reiss,** assistant to traffic manager, Kansas City. **L. V. Richards** appointed assistant to traffic manager, Kansas City, Mo.

NORFOLK & WESTERN.—**D. J. Gareau,** assistant manager personnel, St. Louis, retired Sept. 30 after more than 45 years of service.

PITTSBURG & SHAWMUT.—**Raymond J. Caretti,** assistant to the president, Kittanning, Pa., retired Sept. 30, after over 53 years of service.

(Continued on page 74)

think of all the railroad needs you can lease



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Computers and Data Processing Equipment • Ballast Work Equipment • Grading Equipment • Cargo Containers • Cranes • Draglines • Drilling Machines • Fork Lift Trucks • Metal Working Machinery • Pile Hammers • Powered Maintenance of Way Equipment • Microwave Equipment • Power Shovels • Piggyback Trailers • and of course, Locomotives and Rolling Stock

you can look to

RAILWAY AUTOMATED MACHINERY COMPANY (RAMCO)

for continuous rail welding • maintenance of way equipment and service

INTERNATIONAL CAR CORP.

for quality cabooses

railroad industry subsidiaries of

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Federal Reserve Bank Building
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Telephone: 922-8450, Area Code 312

Introducing LANDRETH'S new molded all fiberglas panels

for •
Refrigerated truck trailers •
Trailer bodies •
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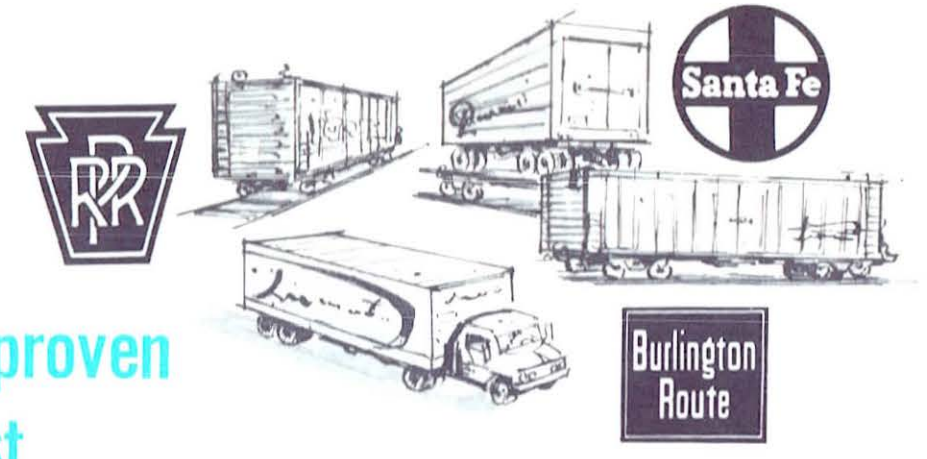
Landreth
INDUSTRIES, INC

First in Panel and Insulation Engineering



Landreth panels proven best by test

Landreth Industries, Inc., continues to pioneer new equipment and systems for the transportation industry. Landreth's experienced engineers have dedicated over 60 years of service to the transportation industry as well as to the research and development of quality, labor-saving, and profit-making systems and products.

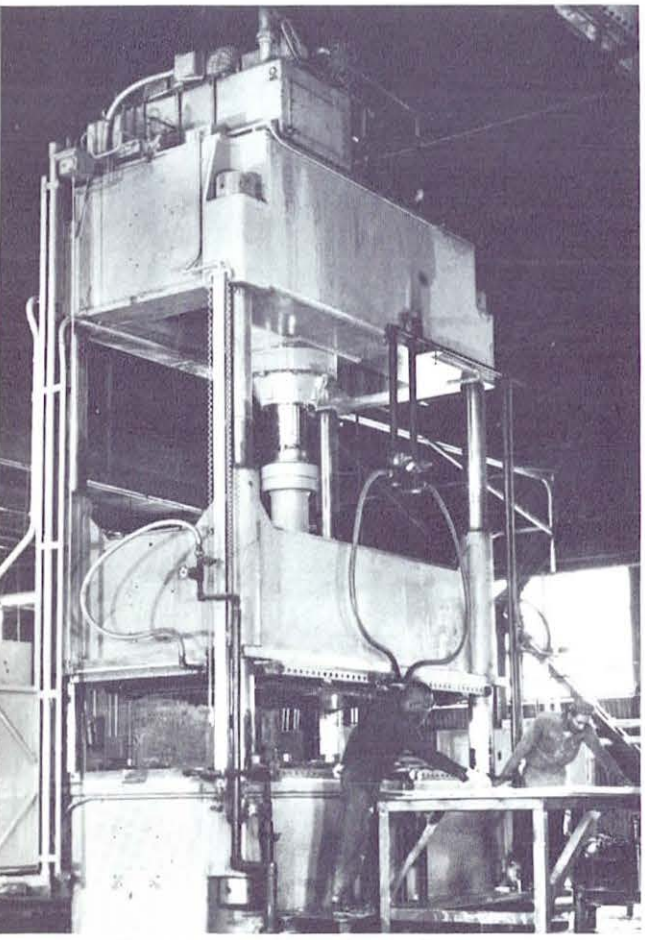
Our modern plants operating under controlled laboratory conditions, supervised by trained engineering specialists insure the best possible panels to suit your *custom* needs.

Most major railroads are already experiencing the results of using Landreth's products. Landreth's Pre-Molded Urethane Foam Panels are utilized in over 3,000 cars and are the most efficient insulated cars used by the railroads today.

Landreth Industries also pioneered the Plastic Liner and today more cars and trailers are fitted with Landreth panels than any other.

Now, through extensive engineering research, Landreth has developed the new Molded All Fiberglas panels for cars, trailers, and containers.

Proven Best By Test to have a better U factor—on the road—in the laboratory—and by an independent testing laboratory.



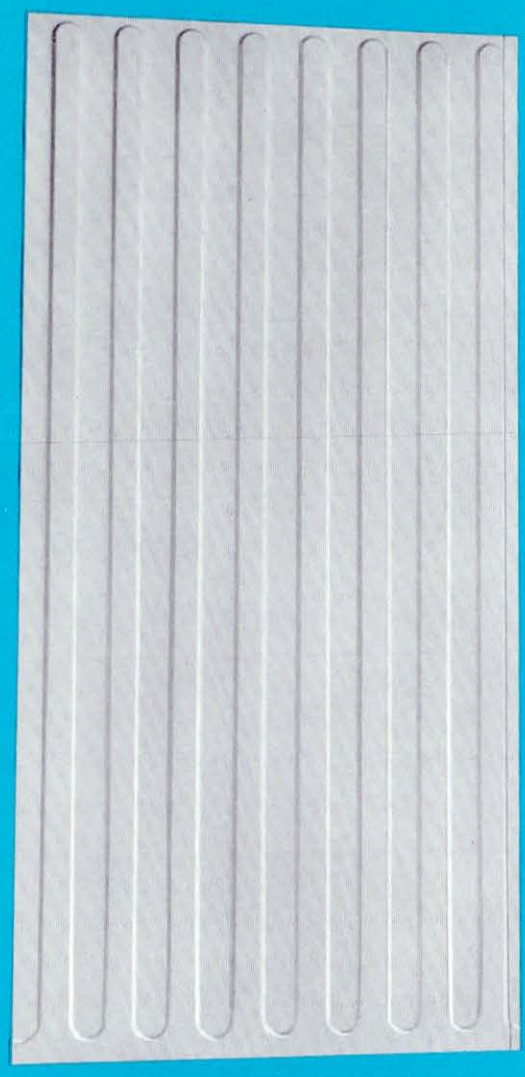
A Fiberglas Molding Press

The most efficient panel available

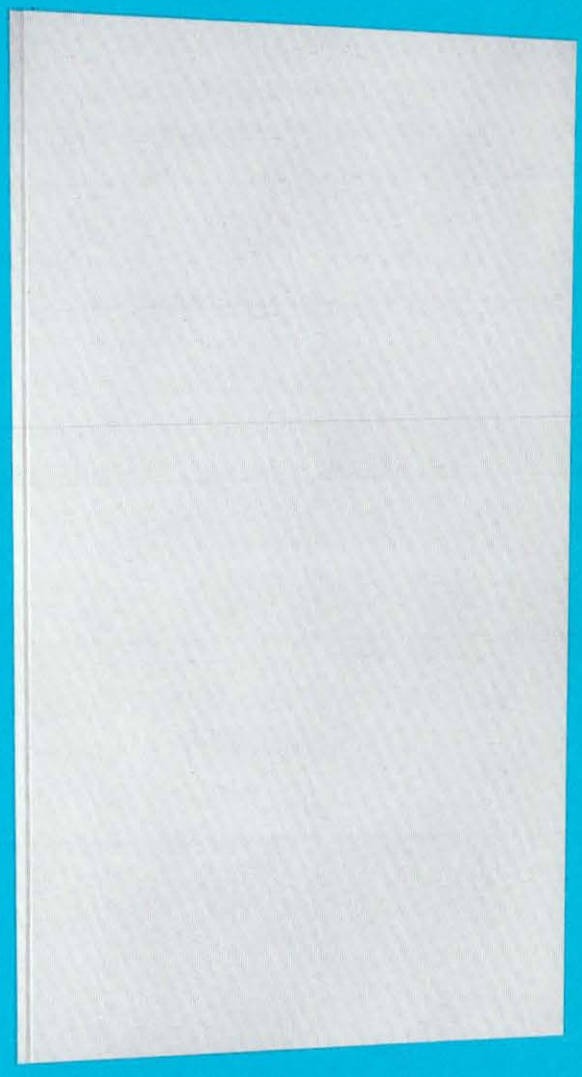
Landreth All Fiberglas panels are machine molded to precision tolerance by matched metal dies, insuring uniform panel dimension and rapid, trouble-free installation. The panels are light weight yet rugged with high resistance to impact damage, over the road vibration, and structural fatigue. Landreth Panels are unaffected by temperature extremes, withstanding the shock of steam cleaning and rapid sub-zero temperature drop without cracking, crazing, or loss of stability. Hard, porcelain-like finish makes it easy to clean and insures a sanitary lining with maximum eye appeal. Also it is impervious to moisture and corrosion. The Landreth All Fiberglas Panels do not retain odors and are vermin proof thus protecting perishable cargo. Quick and easy to repair even with unskilled personnel. Approved by the U. S. Department of Agriculture (Meat and Poultry Inspection Divisions). Low thermal conductance of reinforced Fiberglas makes the Landreth All Fiberglas Panel the best facing for modern, high performance, space-saving, urethane foam insulation.

Available in flat or ribbed strandard sizes. Landreth engineers will also develop and cut panels to your custom requirements.

LANDRETH all fiberglas panels
Rugged – cut costly repairs and layup time!



LANDRETH
ALL FIBERGLAS
RIBBED PANEL



LANDRETH
ALL FIBERGLAS
FLAT PANEL

Landreth all fiberglas panel specifications

The following specifications apply to standard size panels in 8'-9' and 10'

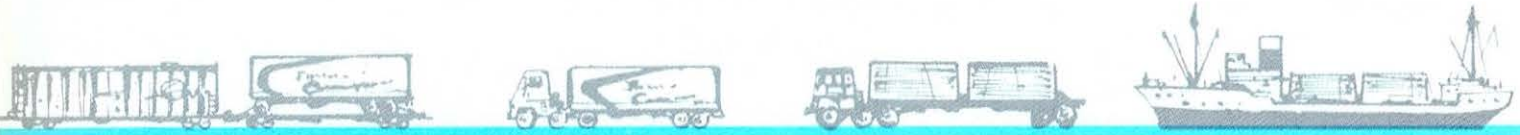
Average Physical Properties

Tensile Strength	15,500 psi
Hardness (Barcol)	53
Flexural Strength	27,500
Flexural Modulus (Room Temp.)	1.35×10^6
Flexural Modulus (180°F)	0.50×10^6
Izod Unnotched	20.0
Panel Thickness (Nominal)	.120
Weight Per Sq. Ft. (Nominal)	1.05#

Landreth All Fiberglas Panels can be engineered to your specifications.

INSURE MAXIMUM AVAILABILITY WITH LANDRETH MAINTENANCE-FREE ALL FIBERGLAS PANELS

- Easy Installation
- Rugged
- Light Weight
- Permanent
- Easy to Clean — Sanitary
- Rot and Vermin Proof
- Odorless
- Shipper Appeal
- Unaffected by Temperature Extremes
- Machine Moulded to Precision Tolerance
- Moisture Proof
- Meets All U.S.D.A. Requirements
- Flat or Ribbed for Assurance of Air Circulation
- Impact Resistant
- No Time Wasted Drying Out
- Easy to Repair



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Highest quality controlled panels on the market today

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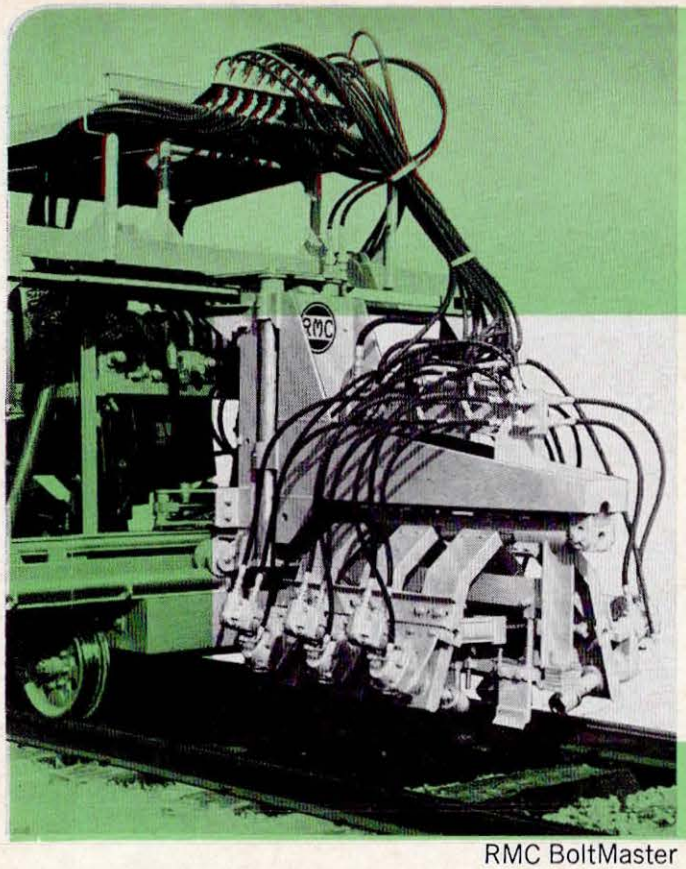
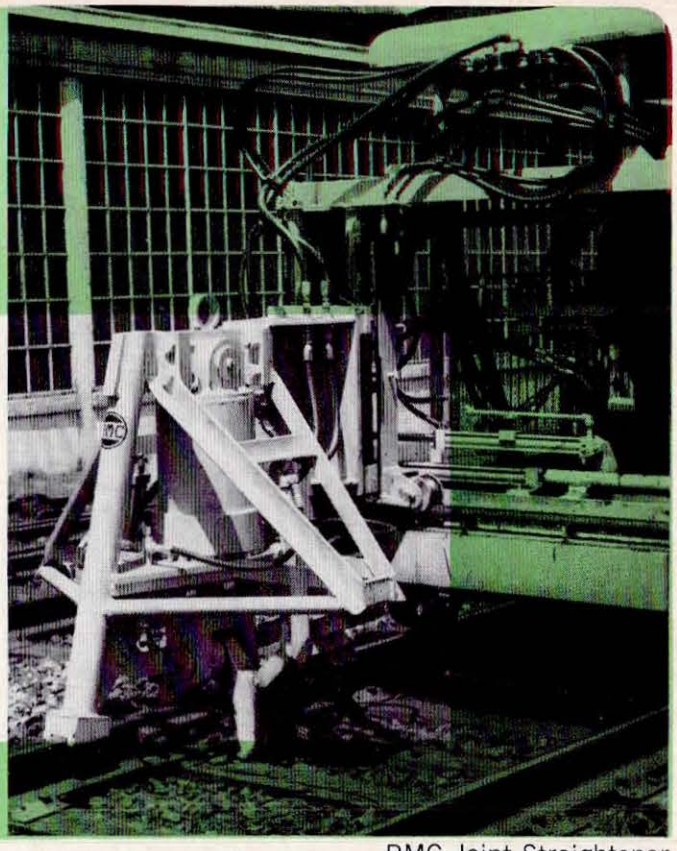


RMC BoltMaster

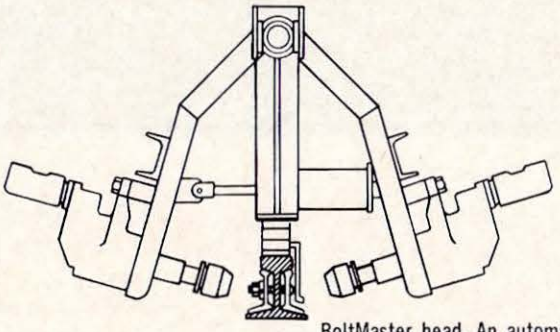


RMC Joint Straightener

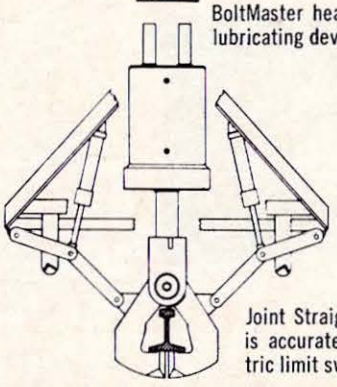
UTILIZATION: TURN BOLTMASTER *into JOINT STRAIGHTENER*

BoltMaster tightens two to three joints per minute (or removes one to six bolts per joint) . . . **Joint Straightener** straightens rails and restores camber to joint bars by vertical cold bending.

Now, RMC offers the combination **BoltMaster/Joint Straightener** . . . or will furnish Joint Straightener heads for existing BoltMasters. With this concept, the railroad enjoys a considerable increase in utilization for the investment. *Write for Bulletins and Prices.*



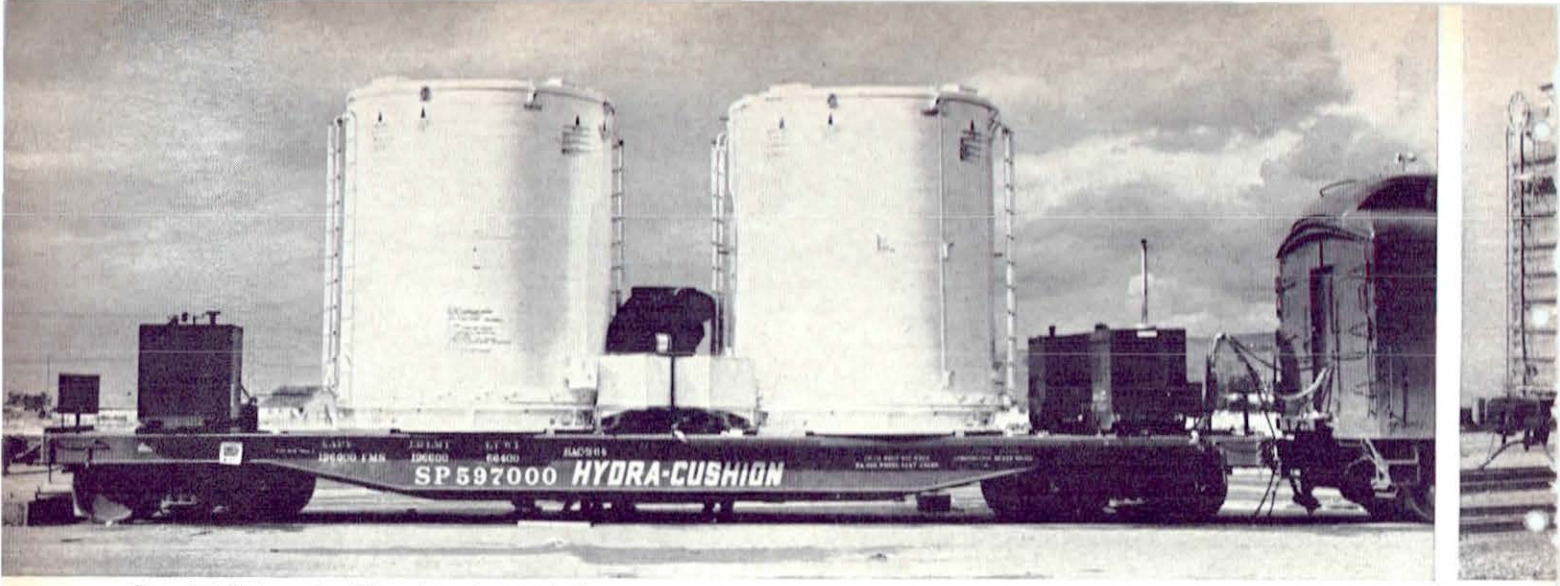
BoltMaster head. An automatic joint lubricating device also is available.



Joint Straightener head. Bending is accurately controlled by electric limit switches.

Railway Maintenance Corporation

Box 1888 · Pittsburgh, Pa. 15230



Special flat car for Titan booster rockets

Coil steel car

Award-Winning HYDRA-CUSHION® UNDERFRAMES

DESIGN & DEVELOPMENT AWARD

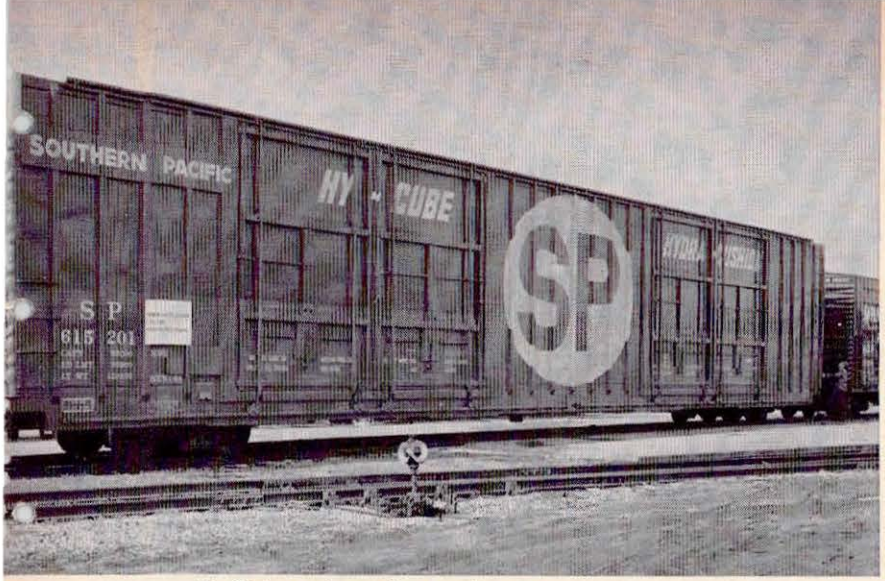
". . . awarded in recognition of railway impact control and associated car design, with resulting benefits in reducing lading and rolling stock damage."

For development of Hydra-Cushion Underframes, the George R. Henderson annual medal was awarded by Franklin Institute to William K. MacCurdy, Stanford Research Institute, and William E. Thomford, Southern Pacific Company.

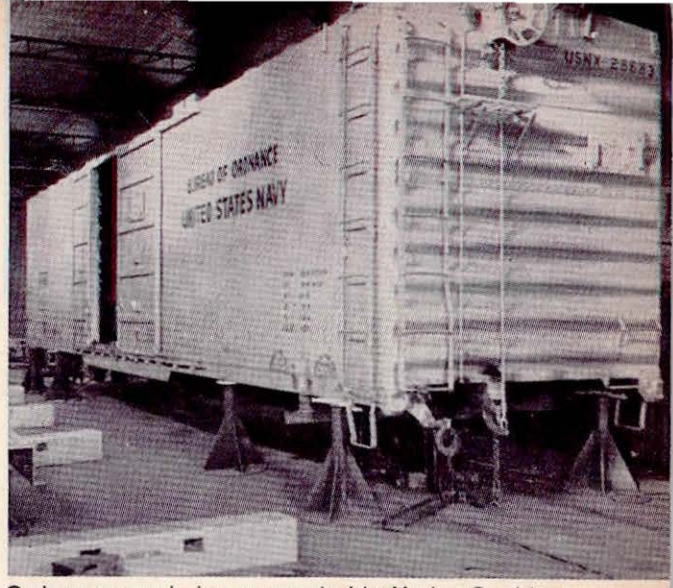
The cars above are just five of the many kinds of Hydra-Cushion* equipped cars now in service with 53 carriers.

Award-winning Hydra-Cushion Underframes give railroad cars the kind of cushioning carriers and shippers must have. Because they provide maximum protection against shock for both cars *and* lading, year after year, Hydra-Cushion Underframes protect the interests of both railroads and shippers.

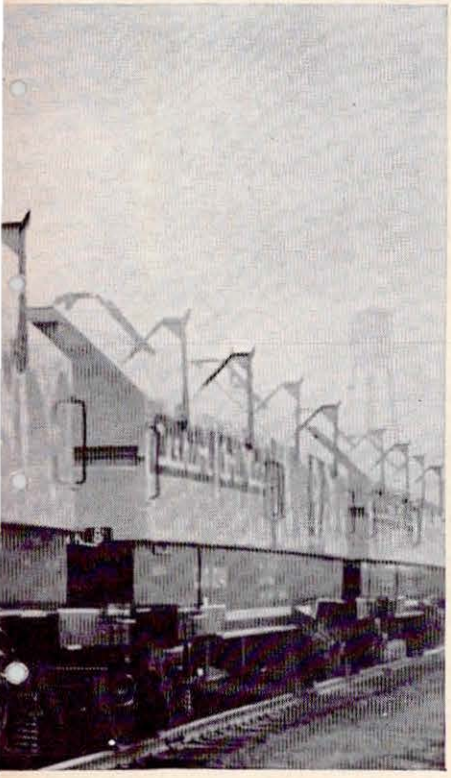
TM HYDRA-CUSHION® UNDERFRAMES

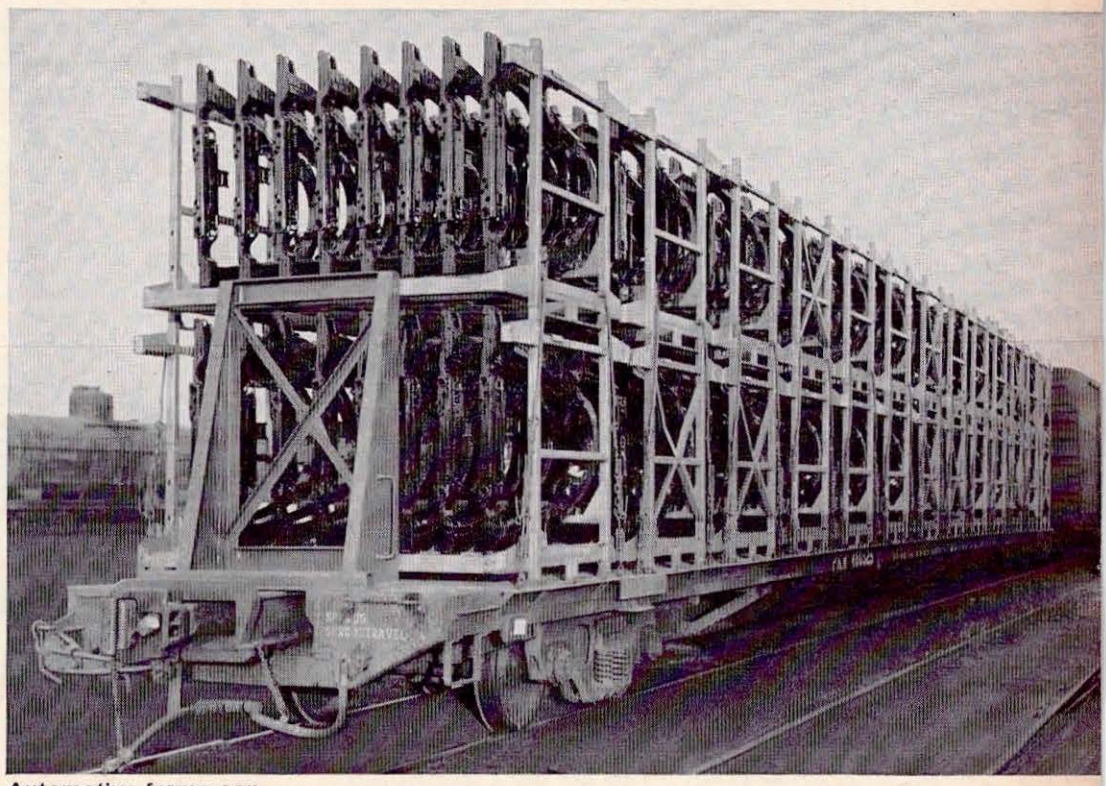


Hy-Cube automotive parts car



Ordnance car being converted to Hydra-Cushion



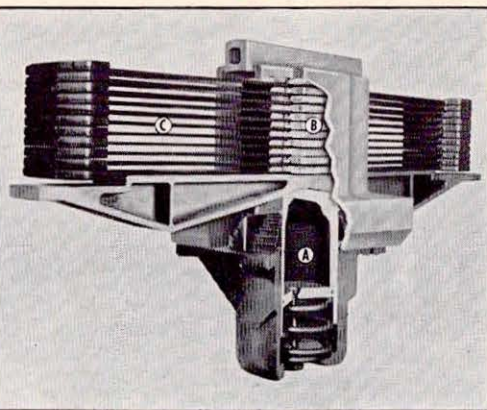


Automotive frame car

cushion cars and lading for 53 carriers!

Find out how award-winning Hydra-Cushion Underframes—the pioneer of modern cushioning devices—can protect your cars or lading. Write Hydra-Cushion Incorporated, Dept. M13, 13101 Eckles Road, Plymouth, Michigan, 48170; or 332 South Michigan Avenue, Chicago, Illinois, 60604. Canadian Representative: International Equipment Company Limited, Montreal.

*Reg. T.M. of Hydra-Cushion, Inc.



THIS COMBINATION MAKES THE BIG DIFFERENCE IN CAR CUSHIONING

The patented combination of hydraulic unit (A) and fixed and movable friction plates (B and C) in the Hydra-Cushion system multiplies the effect of oil pressure many times—obtaining maximum cushioning with low hydraulic pressures and avoiding the maintenance problems characteristic of high pressure systems. Its upright cylinder reduces possibility of oil dripping, and its short-travel reduces possibility of seal wear inherent in long-travel cylinders. Hydra-Cushion design minimizes curvature problems, coupling difficulties, and undesirable overhang.

MORE RAILROADS OWN CARS EQUIPPED WITH HYDRA-CUSHION UNDERFRAMES THAN ANY OTHER MODERN CUSHIONING DEVICE:

American Refrigerator Transit Co. • Atchison, Topeka & Santa Fe • Atlantic Coast Line • Baltimore & Ohio • Bangor & Aroostook • Canadian National • Canadian Pacific • Chesapeake & Ohio • Chicago & Eastern Illinois • Chicago, Burlington & Quincy • Chicago Freight Car Leasing • Chicago, Milwaukee, St. Paul & Pacific • Chicago, Rock Island & Pacific • Chicago, South Shore & South Bend • Clinchfield • Denver & Rio Grande Western • Detroit & Toledo Shore Line • Erie-Lackawanna • Evans Products Co. • Florida East Coast • Fruit Growers Express • Grand Trunk Western • Great Northern • Gulf, Mobile & Ohio • Linde Air Products • Louisville & Nashville • Maine Central • Missouri-Illinois • Missouri-Kansas-Texas • Missouri Pacific • New York Central • New York, Chicago & St. Louis • Norfolk & Western • North American Car • Chicago & North Western • NITX • Northern Pacific • Pacific Fruit Express • Pennsylvania • Pittsburgh & Lake Erie • Richmond, Fredericksburg & Potomac • St. Louis-San Francisco • St. Louis-Southwestern • Seaboard Airline • Soo Line • Southern • Southern Pacific • Texas & Pacific • U. S. Navy • Wabash • Western Fruit Express • Western Pacific • Green Bay & Western • Burlington Refrigerator Express

If you're one of the 389 men in the Railroad Industry concerned with specifying refrigeration equipment, these facts are important to you:

1 Transicold is the second largest manufacturer of piggyback refrigeration, **but** . . .

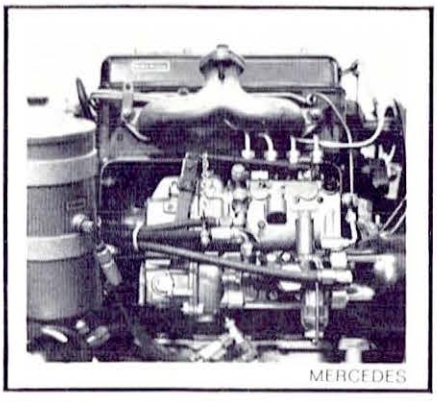
2 **Only** Transicold offers **both** the MERCEDES BENZ and PERKINS diesel engines as power options.

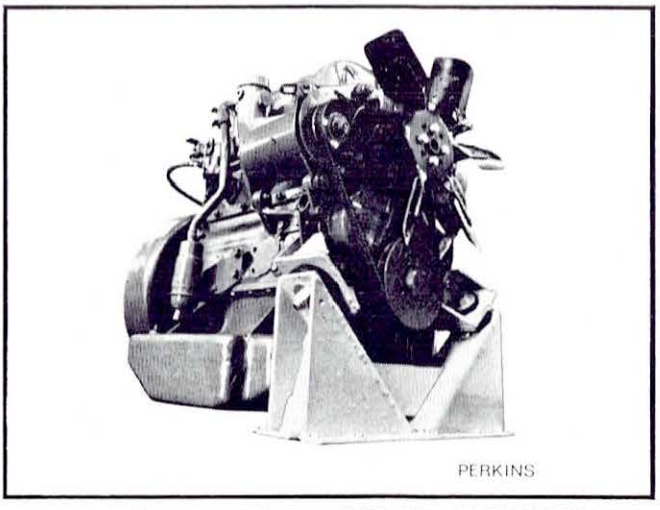
3 **Only** Transicold offers the famous UNIDRIVE direct-power transmission system that eliminates belts and pulleys to meet railroad's demanding needs for simplicity and dependability.

4 **Only** Transicold offers compressor "UNLOADERS" to reduce product dehydration and virtually eliminate top freezing of perishables.

5 **Only** Transicold operates a *Performance Validation Laboratory* providing twice as many checks on the refrigeration unit as the Air-Conditioning and Refrigeration Institute requires.

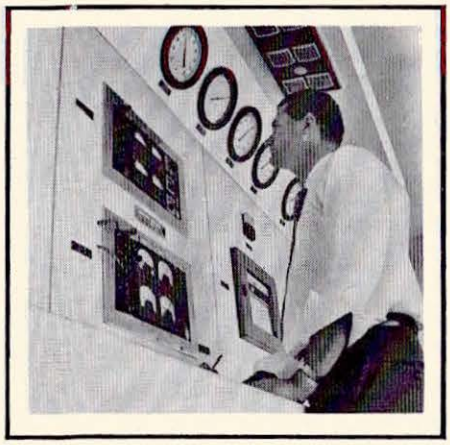
These are a few of the reasons there are over 20 major railroads operating more than 2,000 Transicold refrigeration units today. Obviously there are other refrigeration units on the market, and certainly there are cheaper units available. Transicold's emphasis, however, is on versatility and dependability!


MERCEDES

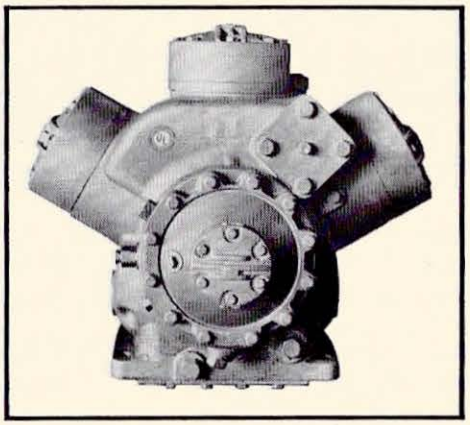

PERKINS

These are the famous PERKINS and MERCEDES diesels which power over 95% of the refrigeration units in use on piggyback trailers. Only Transicold offers you both.

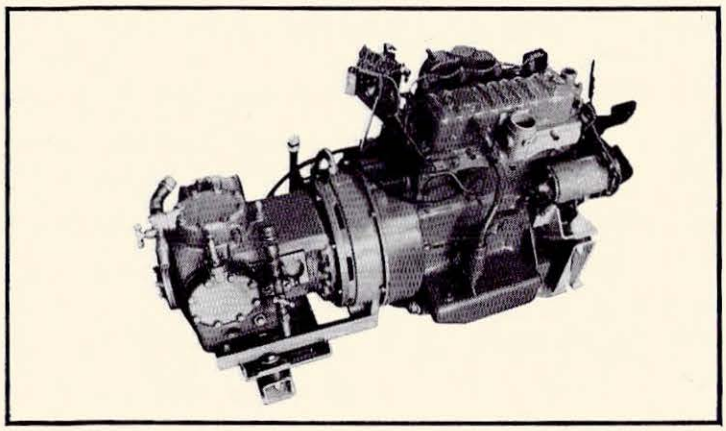
Cold facts about piggyback refrigeration



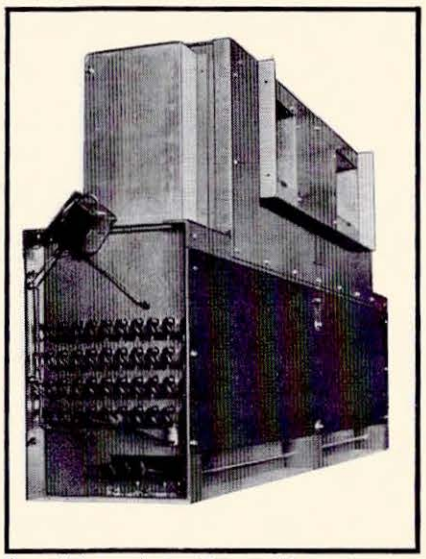
A view of Transicold's P.V. Lab (Performance Validation Laboratory) in which more than 100 tests are made on the actual operation of every model. The P.V. Lab tests far exceed the requirements established by the Air-Conditioning and Refrigeration Institute. Transicold operates the only P.V. Lab in the industry.



Carrier compressors, rugged, ringed, proven for railroads' demanding needs, can be equipped with "Unloaders" to reduce top freezing and dehydration. Only Transicold offers you this sure way to profits.

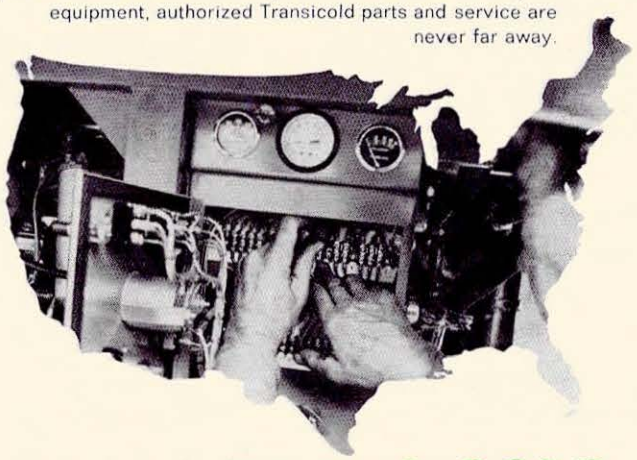


Unidrive! The most trouble-free and dependable power transmission system in the industry. No belts, no pulleys, no transmission-type gears. The heart of Unidrive, the Permanent Magnet Generator, has not one single wearing part! It provides all the electrical power necessary for the system and gives you an unlimited choice of evaporators.



One of the exclusive Transicold evaporator options, the Thinline, is designed with an unusually thin profile to increase useable cargo space, minimize cargo damage from protruding edges, and facilitate palletized loading. One railroad alone operates over 400 Transicold units with the Thinline evaporator.

Over 150 Transicold parts and service centers cover the United States from coast to coast and border to border. Service technicians are factory trained and schooled to specific needs of railroads. Regardless of the location of your equipment, authorized Transicold parts and service are never far away.

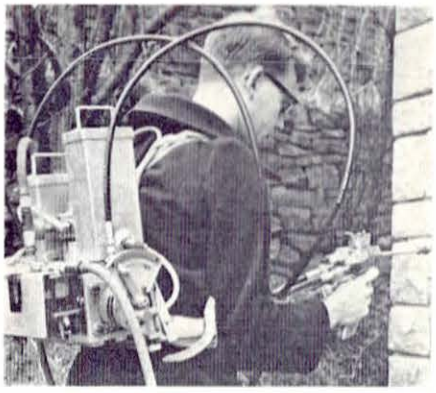


TRANSICOLD SERVICE/WHEREVER TRAILERS TRAVEL

TRANSICOLD CORPORATION

1100 South Taylor Avenue / Montebello, California

NEW PRODUCTS REPORT



Urethane Foam Unit (RA-1)

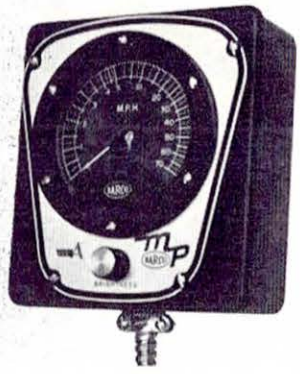
The Mark 18 Lightweight urethane foam unit, built into a rucksack framework, is serviced by an air compressor or by a portable gas bottle. The 75-lb unit has outputs from 1 to 3 lb per min for a possible continuous operation of up to 10 min at one filling. The two liquid foam materials are supplied from ½-gallon gravity feed tanks by material lines into the machine, and then mixed in the Mark VA gun. *Viking-Chase.*

Anti-Slip Scaffold (RA-2)

The aluminum VX Instant Scaffold is designed to facilitate car maintenance in winter with its anti-skid-coated platform secured to the frame with automatic locking hooks. The 12-ft high by 2-ft 6-in. wide scaffold, an assembly of two folding sections mounted one on top of the other, is stabilized by two outboard supports with non-skid feet. It rolls across recessed rails on rubber tired, locking casters. *Up-Right Scaffolds.*

Pressure Washing (RA-3)

The John Bean Aquablast 75 discharges water under a pressure of 6,000 psi through a knife-edge descaling nozzle at 10 gpm. The high-pressure concentrated stream is said to strip paint or cut through caked dirt, hardened cement, gummy residues and accumulated grime in seconds. A driving spray does the final rinsing. Tank holds 50 gallons. Hose length is 50 ft. The one-man operated machine can be hooked up to any water outlet. *FMC.*



Speed Indicator (RA-4)

Almost 50% of the dial face of the MP electronic slow-speed indicator is allocated for determining speeds in the 0 to 5 mph range. It is also said to be completely accurate up to 70 mph. In the lower range, the precise speed measurement feature enables engineman to maintain the desired level of efficiency in hump-yard operation, unit-train and main-line service. A control on dial face provides the desired brightness. *Barco Div.*

Splice Kit (RA-5)

Epoxy splice kit features a new cable centering device that assures maximum insulation around the cable. Low viscosity permits easy mixing and greater cable penetration without air voids. Color-toned components and premeasured packaging assures foolproof mixing. A special cable jacket primer improves adhesion of the cable to the epoxy and eliminates moisture penetration. Recommended for up to 5 KV. *Hysol Corp.*

RAILWAY AGE WEEKLY

30 Church Street, N.Y., N.Y. 10007 READERS' SERVICE (Att. George Johnson)

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58-59 60 61-64 65 66-67 68-69 71 72 73 74 75 76 77
78 79 80 81 82 83 84 87 88 91 92

PLEASE SEND INFORMATION ABOUT PRODUCTS DESCRIBED ON PAGE 70 MARKED RA-1 RA-2 RA-3 RA-4 RA-5

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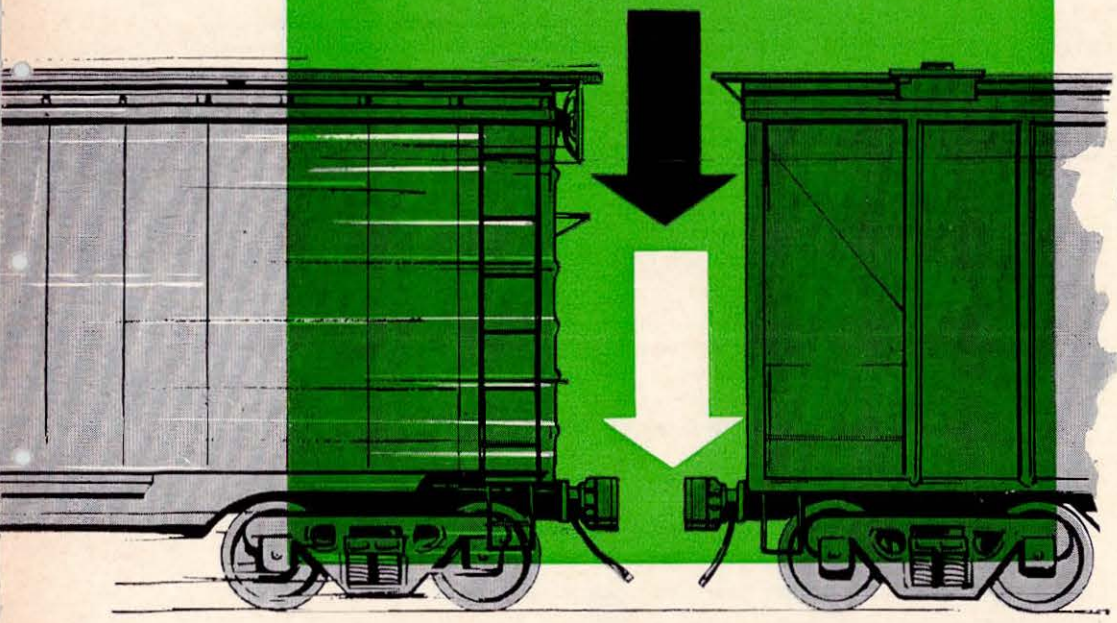
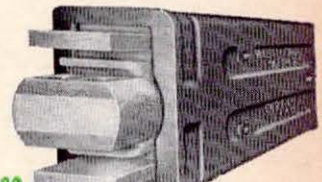


NY-11-F
Friction gear for 24⅝ inch pockets; 2¾ inches travel. A.A.R. Certificate No. 3, under A.A.R. Specification M901.

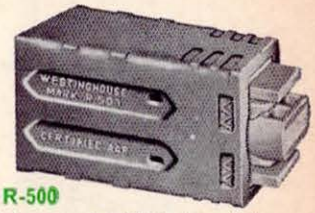
MARK 40
Friction gear for 24⅝ inch pockets; 3¼ inches travel. A.A.R. Certificate No. 35, under A.A.R. Specification M901.

MARK 40-A
Friction gear for 24⅝ inch pockets; 3¼ inches travel. A.A.R. Certificate No. 35, under A.A.R. Specification M901.

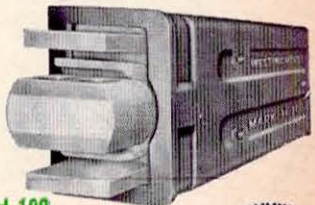
MARK 50
Friction gear for 24⅝ inch pockets; 3¼ inches travel. A.A.R. Certificate No. 41, under A.A.R. Specification M901E.



MARK 80
Friction gear for 36 inch pockets; 4¾ inches travel. A.A.R. Certificate No. 37, under A.A.R. Specification M901C.



MARK R-500
Friction-rubber gear for 24⅝ inch pockets; 3¼ inches travel. A.A.R. Certificate No. 42, under A.A.R. Specification M901E.



MARK H-100
Friction-Hydraulic gear for 36 inch pockets; 4¾ inches travel. A.A.R. approved for limited use.

Cardwell Westinghouse, through its many engineering accomplishments, produces draft gears to meet your individual car capacity requirements—by protecting your cars from high impact damage and reducing maintenance costs with a draft gear designed for every pocket and purpose. Whichever Cardwell Westinghouse capacity gear you require, you will find the same high quality and protection. For your draft gear needs, specify Cardwell Westinghouse.

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RPI MEMBER

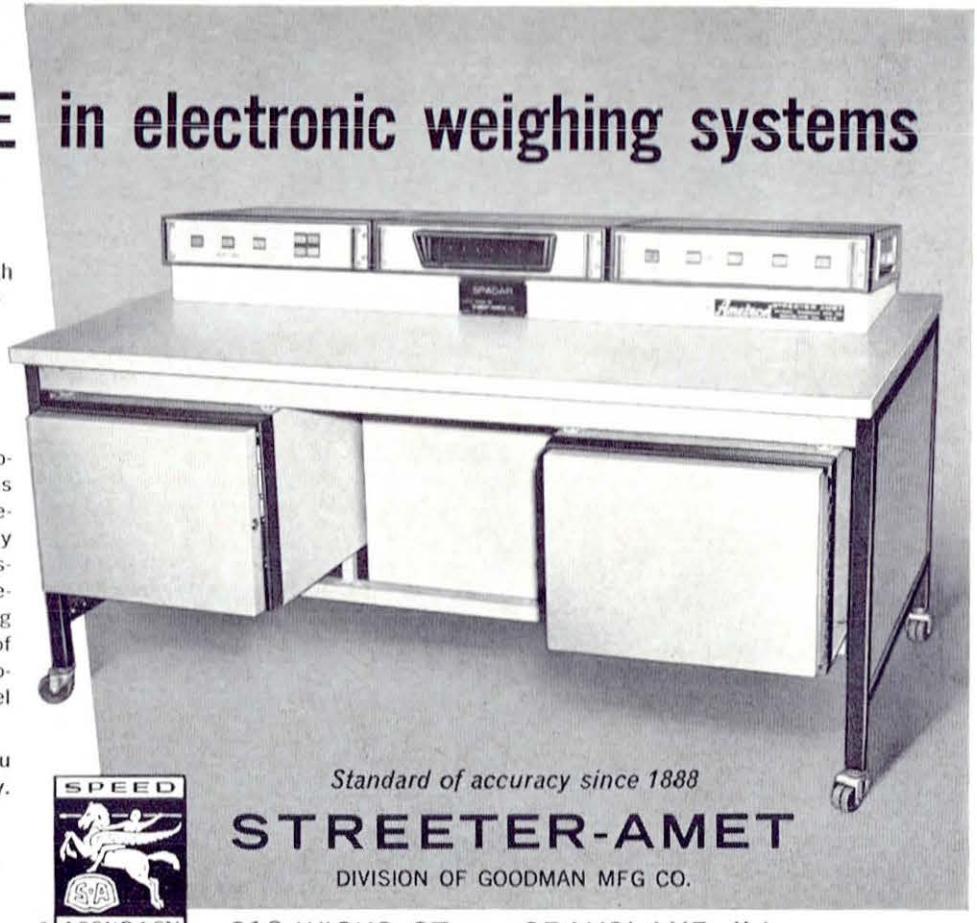
A NEW ADVANCE in electronic weighing systems

by Ametron

The new SPADAR model high speed motion weighing system is the fastest and most accurate system available by actual field tests. It records weight in a response time of less than one second, using all solid state components. The SPADAR maintains complete averaging and integrating of any high frequency vibration inherent in the system and it is particularly designed for two draft weighing as well as for up-grading of present scales to accommodate the new longer wheel base railroad cars.

Operation is simple . . . you get results fast and accurately.

Send for Technical Data Sheet D-5600 today.



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DIVISION OF GOODMAN MFG CO.

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Confidence that Rides with a Quarter-Million Cars

One of our statistically-minded associates recently estimated that more than a quarter-million freight cars have been equipped with PITTSBURGH forged parts during the last half-century. Many have been in continuous service throughout that period.

These figures take on an important meaning to us when they are related to the sustained confidence they represent in our capability. By the same token, the mechanical progress made by railroads in the past 50 years repeatedly has confirmed our confidence and enthusiasm in serving American railroads. We look forward to future progress.

For this reason PITTSBURGH FORGINGS CO. is investing more heavily than ever before in development, in personnel, and in facilities to serve the railroad industry.

Write for our new Railroad Car Forgings Catalog

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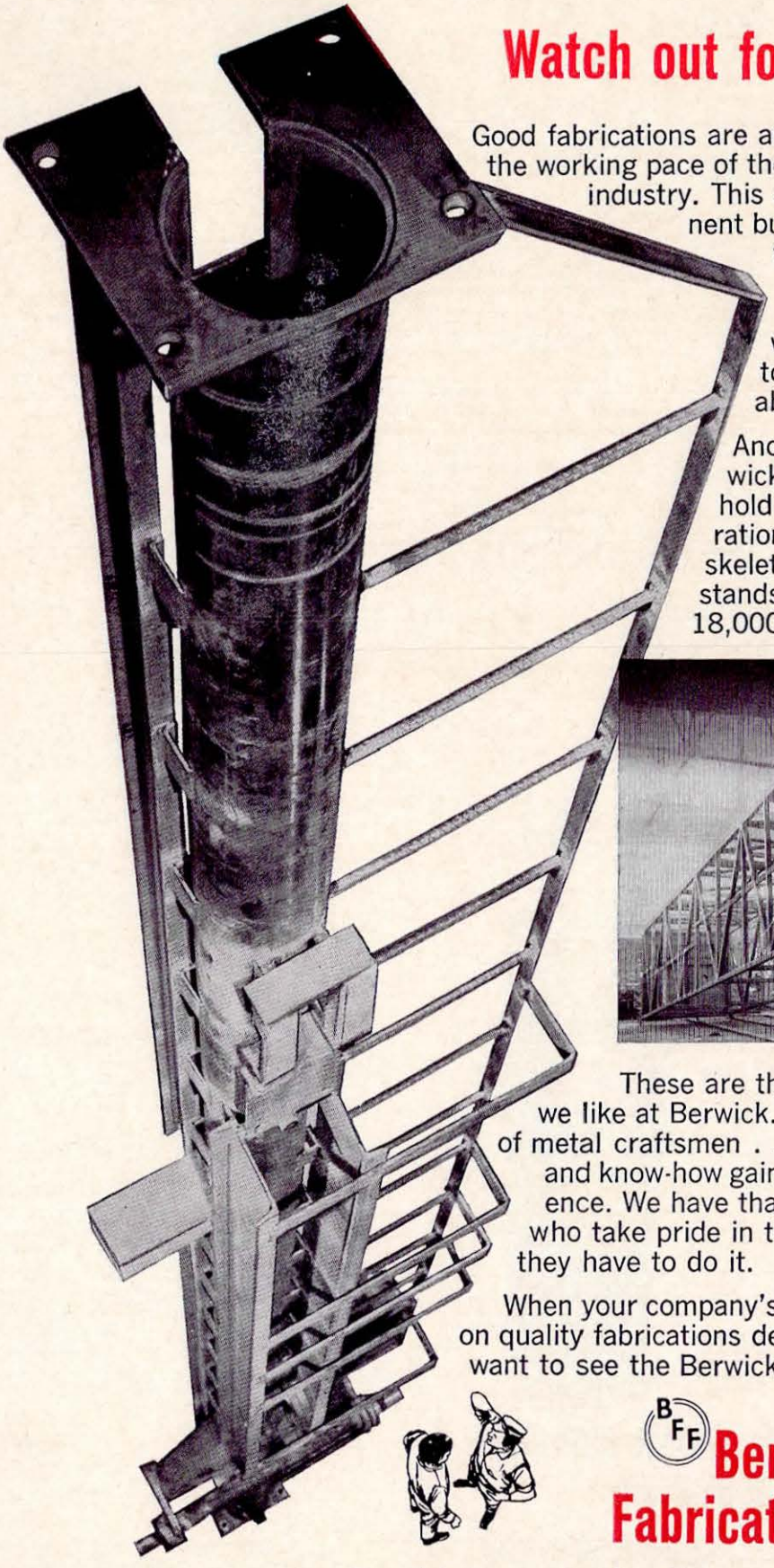
PITTSBURGH FORGINGS CO.

OFFICES: CORAOPOLIS, PA. PLANTS: CORAOPOLIS & JACKSON, MICH.

Subsidiary Company:
GREENVILLE STEEL CAR CO.

FORGED FREIGHT CAR PARTS AND FABRICATED ASSEMBLIES

Watch out for that first step!



Good fabrications are an important "first step" in the working pace of the oil industry, or any heavy industry. This one's a drilling rig component built to hold the whirling bits that probe the earth for oil . . . 40 feet and 2300 pounds of shaped and welded steel strong enough to take everyday use and abuse in the rough country.

Another behemoth in the Berwick shop is specially built to hold tons of delicate air separation equipment. The welded skeleton is ⅓ stainless steel . . . stands 54 feet high and weighs 18,000 pounds.

These are the kinds of fabricating jobs we like at Berwick. Jobs to challenge the skill of metal craftsmen . . . that take special ability and know-how gained through years of experience. We have that kind of people here. Men who take pride in their work and the facilities they have to do it.

When your company's running progress depends on quality fabrications delivered on schedule, you'll want to see the Berwick men about that first step.

Call or write.

Berwick Forge and Fabricating Corporation

Berwick, Pennsylvania Chicago office: 80 E. Jackson Blvd.

(*Continued from page 60*)

RAILWAY PROGRESS INSTITUTE.—**Rodney A. Harris,** treasurer, advanced to vice president and secretary (RA, Oct. 4, p. 36). **Robert A. Matthews,** acting secretary, succeeds Mr. Harris.

ROCK ISLAND.—**G. W. Kelly,** vice president-operations, elected senior vice president-operations.

David T. Breckinridge, assistant to the comptroller, appointed manager of financial planning.

ROCK ISLAND MOTOR TRANSIT CO.—**George J. Krause** named district traffic representative, Chicago.

SANTA FE.—**Robert D. Carver,** assistant manager and assistant secretary, system retirement bureau, named manager and secretary, system retirement bureau, to succeed **Thomas E. Chappell,** who retired Sept. 30.

SOO LINE.—Discontinued its purchasing and stores department Oct. 1 and in its place created two departments. One department will manage the inventory of material on hand for use in the road's operations and maintenance programs, and the other will purchase material and supplies. **Thomas J. Ruth,** manager, purchasing and stores, becomes manager, purchasing, and **Francis J. Weingartner,** assistant to manager, purchasing and stores, named manager, materials and inventory.

SOUTHERN PACIFIC.—**J. L. Young** appointed superintendent of safety, Houston, to replace **D. R. Prince,** who retired Sept. 30 after nearly 49 years of service. **R. R. Swift** named assistant superintendent of safety, Houston.

UNION PACIFIC.—**Phillip J. Schmidt** named to the newly created position of general industrial agent, Omaha. He was formerly manager, industrial development, **Rock Island,** Chicago.

Supply Trade

Robert H. Cantwell, general manager-sales, **American Steel Foundries,** has been named vice president-sales, with headquarters at Chicago. **F. P. Thomas** has been appointed sales manager, industrial and locomotive products. **L. W. Burkett** named product manager-brakes.

Harris Shane has been elected vice president, industrial relations for the **Pullman-Standard, Trailmobile** and **Transport Leasing** divisions of **Pullman Incorporated.** Mr. Shane, formerly vice president, industrial relations, Pullman-Standard division, will continue as administrator of pensions and group insurance for all divisions of the corporation.

The mechanical department of the **Tank Car Division, Union Tank Car Co.,** has been reorganized into two departments: The Research and Product Development Department and the Car Repair and Maintenance Department. **D. C. Graves,** vice president, will head the Research and Product Development Department, and **J. E. Cunningham,** assistant vice president, named vice president—car repair and maintenance.

Griffin Wheel Co. has opened a sales office at St. Paul to serve railroads in the St. Paul-Minneapolis area. **John R. Howells,** formerly a sales representative at Chicago, will direct the new office.

Robert H. Cantwell
ASF

Harris Shane
Pul'man

International Railroads' Weighing Corp., Northfield, Ill., has appointed the following sales representatives: **Maquinas Y Equipos, S. A.** of Calzada Vallejo 724, Mexico 15, D. F.; **Clarence Gush,** 1575 Railway Exchange Bldg., St. Louis, Mo.; **T. C. Johnson,** 31 W. Orange Street, Chagrin Falls, Ohio; and **Southeastern Railway Supply, Inc.,** 2304 Wilson Blvd. (P.O. Box 368), Arlington, Va.

Standard Pipeprotection, Inc., will be acquired and operated as a subsidiary by **General Steel Industries, Inc.** The agreement provides for the exchange of 106,000 shares of GSI stock or all outstanding shares of Standard. Operation will continue under present management, headed by **Hugh W. Baird.**

Sam Russo and **Werner H. Siemens** have been appointed customer service engineers, **General Railway Signal Co.,** at Chicago and New York, respectively.

John Byrne has been apointed manager of Indian operations for **Alco Products, Inc.,** subsidiary of **Worthington Corp.,** at New Delhi. Mr. Byrne had been manager of diesel products sales and service, **Montreal Locomotive Works, Ltd.,** Alco's Canadian affiliate.

National Lead Company's Magnus Metal Division has announced plans to build a new plant at French Camp near Stockton, Calif. Located on a 7 acre tract, the plant will produce solid railroad journal bearings for the west coast railroads and will also be utilized as a warehouse.

Harry S. Conrad, Jr., has been appointed manager of railroad sales for **C & D Batteries,** Conshohocken, Pa. Mr. Conrad was a market research analyst, Stackpole Carbon Co., St. Marys, Pa., prior to joining C & D on Sept. 1.

Divisional executive offices of the **Trailmobile Division** of **Pullman Inc.,** moved on Sept. 27 from Cincinnati, Ohio, to 200 S. Michigan Avenue, Chicago, 60604. Officers now at Chicago are: **J M. Gilroy,** vice president and general manager; **R. W. McDowell,** vice president—marketing; **C. W. Anderson,** vice president—manufacturing; **R. F. Bogan,** vice president—purchasing; **R. A. Hitch,** vice president—engineering; **J. F. Schwartz,** vice president—finance; **C. P. Reynolds,** vice president—foreign affairs; **J. F. Rozner,** vice president—industrial relations; and **G. G. McManis,** manager—fleet, rail and container sales.

OBITUARY

Herbert V. Cook, retired assistant to vice president-traffic, **Frisco,** died Sept. 21 at Thayer, Mo.

Charles P. Leese, 65, retired chief engineer and sales representative, **Standard Car Truck Co.,** Chicago, died Sept. 30 at Warsaw, Ind.

VORTACOOL

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WOULD YOU LIKE TO ...

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OPERATING COSTS IN ICC ACCOUNTS 387 AND 399

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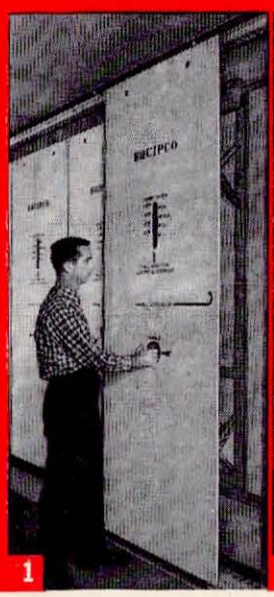

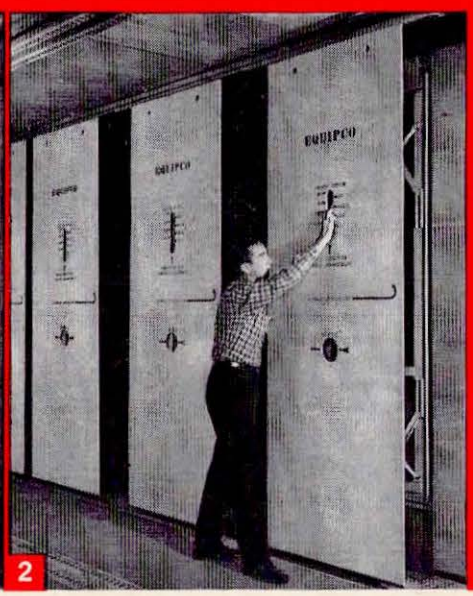

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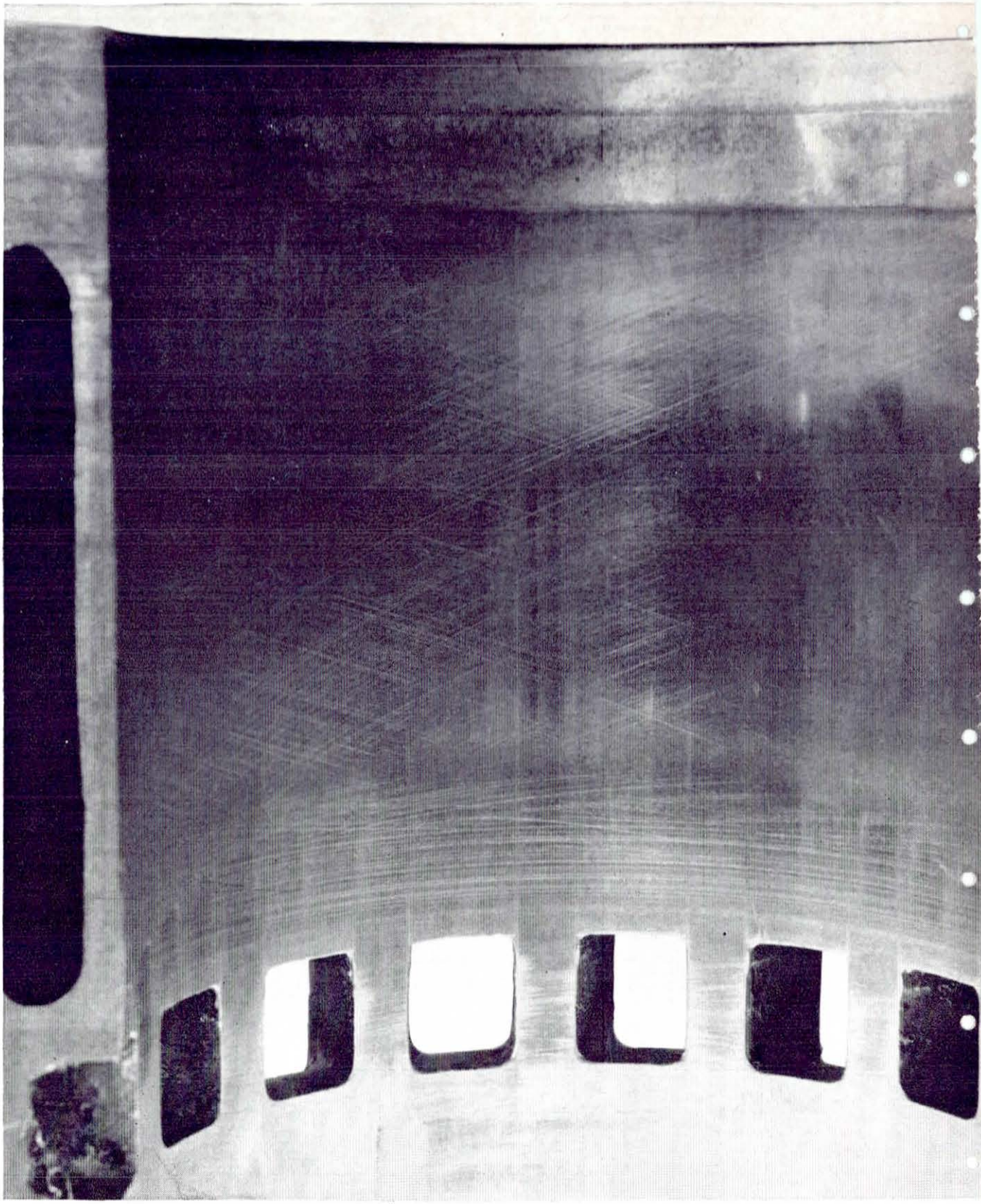

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D. Free distribution (including samples) by mail, carrier or other means	2,354	2,082
E. Total distribution	16,279	16,137
F. Office use, left-over, unaccounted, spoiled after printing	149	188
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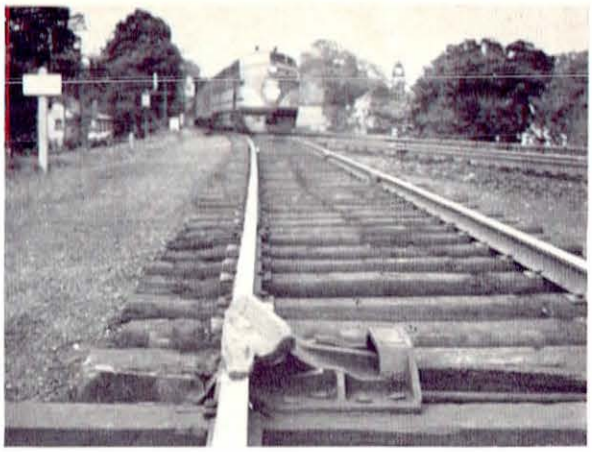

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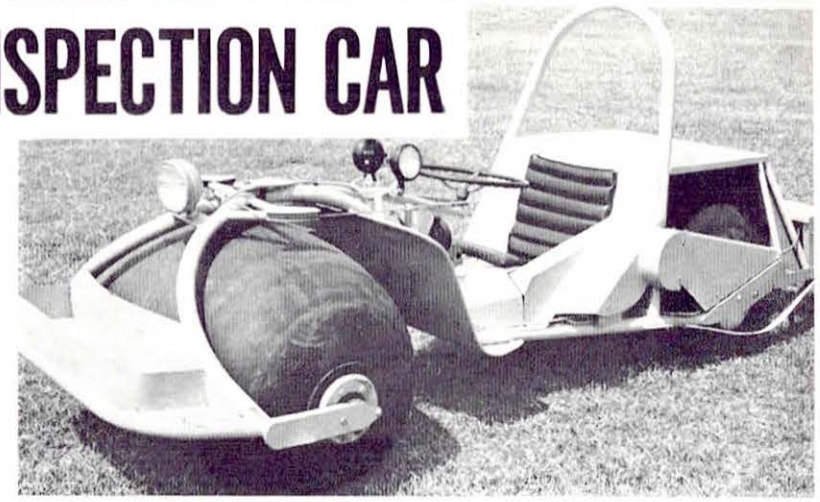

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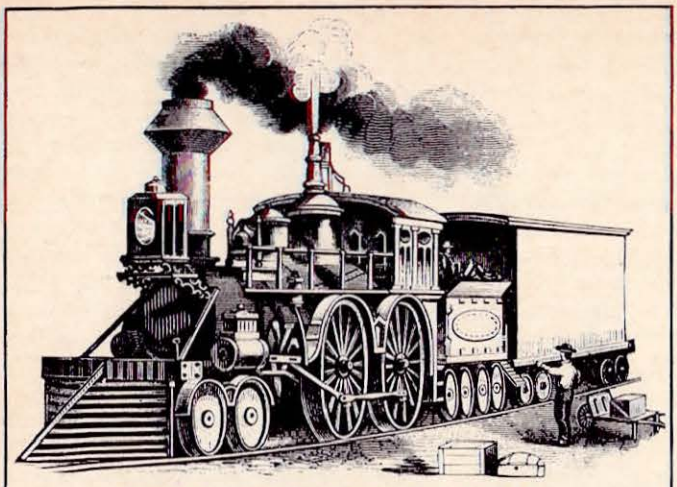

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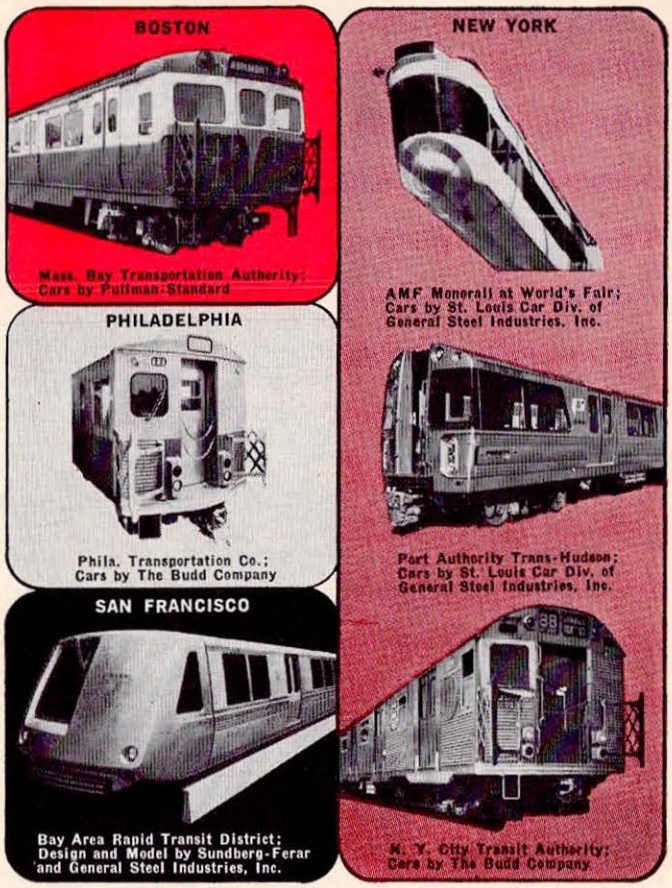
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Key word for S&C personnel

(Continued from page 30)

factors, either that they are of so little importance as to have little effect on the outcome, or that a man's judgment can be substituted for the computer-calculated end result—namely, leaving speed from the group or final retarder.

• **The cost factor.** Of course, the semi-automatic yard will cost less than the automatic yard, but, some ask, is this first cost difference the only important factor? Many railroaders will say no. But, at this time, the initial cost of the semi-automatic yard appears to be a deciding factor. One veteran railroader had this comment on the cost situation: "No doubt the semi-automatic yard is a big step upward over the flat switching or rider-hump yards they replace, but a truly economic judgment of these new types of yards will include a study of loss and damage. It's just too early to say they we don't need all the elaborate controls that the automatic yard provides."

• **Computers for CTC.** Computers may well be helpful to signal engineers in another area of control—centralized traffic control. While some railroads now have relay-type automatic dispatching systems in which trains make meets and passes automatically, one railroad is considering and another is installing a computer for controlling CTC. Flexibility is cited as the major advantage of such computer control. For example, if track and signal changes are required to meet changes in traffic patterns, it is only a matter of changing the program on the computer. Otherwise, the control system hardware remains the same. With a relay system of logic control, changes must be made in the actual system configuration and wiring.

Computers are also going to play a large role in the area of communications. They can serve the communications department, as well as be its master, demanding more and higher quality facilities to feed it data. For the harried communications officer, the computer may be the relief he is seeking to handle the information explosion on his railroad.

• **A fast switch.** The computer as a switching mechanism can provide a fast switch of circuits, format changes, editing, message accounting and many other features to provide a truly integrated communications system. One of the big advantages of computer switching is that it can handle a variety of inputs and outputs. For example, such a computer-switched communications system could handle teletypewriter input from a yard office for train consists, and change the format to binary coded digits for direct input to a computer for data processing. Similarly, the computer switching system will be able to take messages, data, and so forth direct from the central data processor and send it in the form required at yards and offices on and off the railroad. The importance of this capability can't be underestimated: It's what railroad managements want today. Here's what B. F. Biaggini, president of Southern Pacific told the AAR's Data Systems Division meeting in St. Louis last month:

"What we expect to achieve on a gigantic scale is the ability to observe at a single glance the operation of an entire system—to have available, at every level of supervision and every point of action, the information that the responsible supervisor or employee at that point needs, to do a superior job of modern-day railroading." For Southern Pacific, part of this task has meant the installation of a microwave system stretching from Arizona through California to Oregon. Similarly, Southern has practically completed a 4,100-mile microwave system which is also han-

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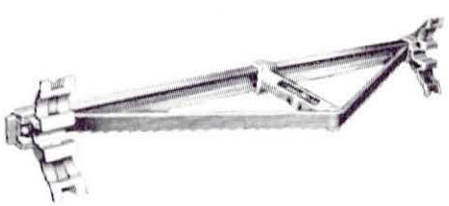

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dling facsimile waybill transmission. This microwave system is the backbone support for a truly up-to-the-minute information system on Southern that is typified by its computer control center in Atlanta, Ga. (RA, Sept. 13, p. 26).

● **And ACI too.** To add to the information flow is that data which will be provided by automatic car identification. Although ACI looks about a year away from any decision by the AAR on a specific system, communications officers would be well-advised to be planning for this eventuality. C. D. Buford, president of Pittsburgh & Lake Erie, pointed out the importance of ACI last month at the annual meeting of the AAR's Communication and Signal Section: "ACI is something we absolutely must have for the development of our information systems. Accurate, communicable, instantaneous information is my description of ACI. The operation of railroad computer systems is greatly impeded by the inaccurate car-movement data fed into them. This would appear to be correctable only with the adoption of a universally acceptable ACI system."

In addition to planning for the computer age and what might be termed the intermediate or long range projects, there are many other areas of communications and signaling and hardware planning that might well be considered in next year's budget considerations. That old workhorse, two-way radio, can still save time, increase productivity, and hence be a dollar earner. For example, many railroads are finding it valuable to equip maintenance-of-way gangs with radio and to provide radio flagging for protection against train movements. In general, orders are given to train crews to contact the gang foreman to obtain permission to move through the work area. By keeping in contact, the gang can work until the train is nearing the work area, and then it can clear the line with a minimum of delay to its own operations and the train's movement.

● **Train identification?** One railroad is studying the possibility of using its train-to-wayside radio system for transmission of tone signals coded in such a way as to identify the caboose of passing freight trains. When a train passed a wayside base radio station, the wayside radio transmitter would be actuated to send out a coded signal, in effect asking for identity. Equipment on the caboose, working in conjunction with the radio set, would respond and transmit a coded radio signal identifying the caboose (and hence the train).

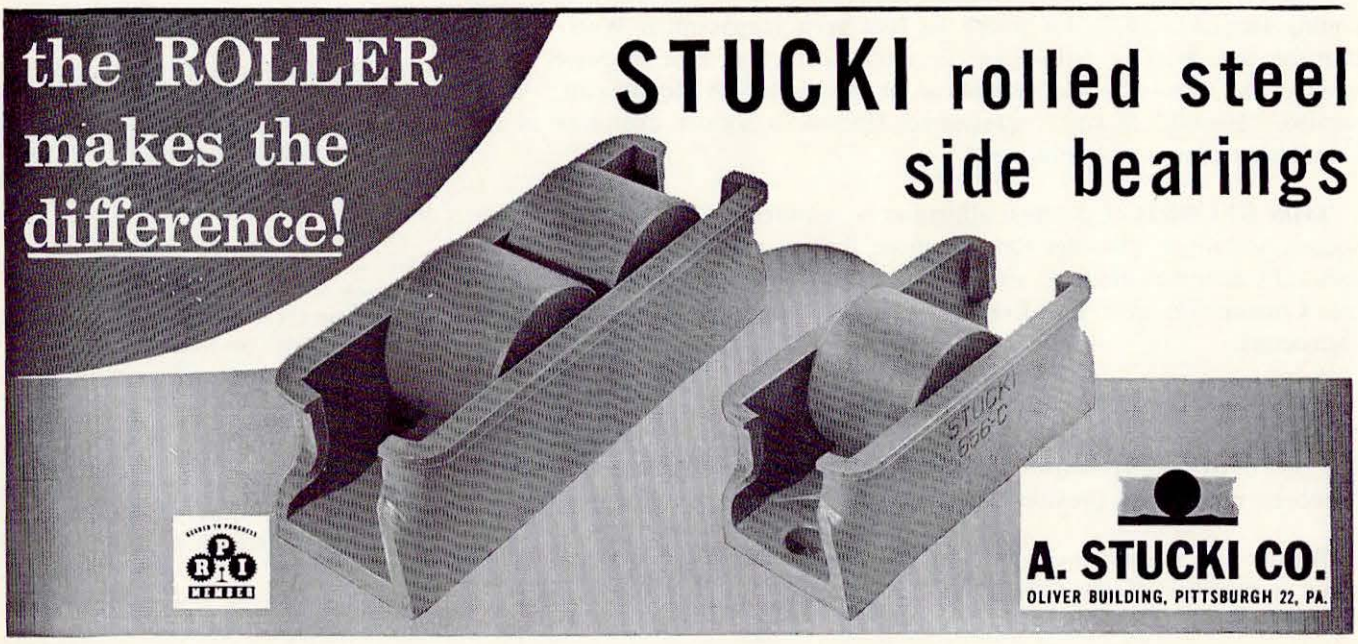
Knowing the caboose on a train, and having the train consist list available, some type of car identification would be possible. Admittedly, this does not provide a check of each car in the train, but some railroaders see it as a possible first step toward ACI.

Another immediate planning item might be the extension of dial telephone service to wayside stations on main and branch lines through message circuit dialing equipment. The message circuit dialing system makes the branch line offices dial extensions from automatic telephone exchanges. Service is improved, and persons located in these branch offices can dial directly into a mainline system to company headquarters or any other office on the railroads.

● **Signal cost-savers for 1966.** Not to be left out of the practical problems of budgeting for next year, signal engineers might consider the use of overlay track circuits at highway-crossing protection installations and at electric lock locations to obviate the need for insulated joints. Such circuits are now considered mandatory or standard specifications in welded-rail territory on many railroads. Also, in welded rail territory, many roads are using center-fed direct-current track circuits. One railroad using center-fed circuits has eliminated all insulated joints between automatic signals in block-signal territory. This road has obtained circuits up to 16,000 feet in length.

Some railroads are finding cost savings in CTC construction by obtaining ICC permission to install signals on one side of the track only. This means that some signals will be on the left of the track. An immediate advantage is that the signals can be located on the pole-line side, making for shorter cable runs to signals. Also there is no need for burying cable under the tracks to reach signals. One signal engineer commented that it makes it easier for track gangs, in that they can "dig to their heart's content" on one side of the track. With the ability to put signals on the left side of the track, considering single-track CTC, there is no need to throw one end of the siding to clear a high signal.

● **Plan for '66 and more.** With computers and other types of digital control systems here, now, it might be most advisable for communication and signal officers to plan not only for next year, but for several years ahead. Only in this manner can they be alert to the tremendous impacts of the information explosion and the computer revolution —and, as one observer puts it, to be caught napping today is to be so far behind tomorrow as to be out of the race.



WATCHING WASHINGTON WITH WALTER TAFT

TAFT

• **THE LIGHT TOUCH** was in order at the Senate Commerce Committee's Sept. 29 hearing on President Johnson's reappointment of Charles A. Webb to the ICC (RA, Sept. 27, p. 12). The approach got some laughs. But it also pointed up general acceptance of the reappointment as so meritorious that a once-over-lightly treatment was all the Committee needed to give it.

Webb has been a member of the Commission since 1958, and he is its 1965 chairman under the plan of rotating that office annually. The Senate Committee's consideration of his reappointment came up when it was also considering President Johnson's reappointment of Whitney Gillilland to the Civil Aeronautics Board. Four to five members of the Committee were on hand for the hearing's opening, and the Gillilland case came up first.

MUCH TIME was used by Senator A. S. Mike Monroney (D.-Okla.) in questioning the CAB member. The senator seemed to be making a record designed to show that CAB could improve on what it has been doing to promote extension of air service to communities not served by the so-called trunk airlines.

TIME WAS UP for four of the five senators present, including Monroney, when the Oklahoman finished. They were overdue at another meeting. So the Committee's chairman, Senator Warren G. Magnuson (D.-Wash.), asked that the hearing be continued by the one who could remain—Senator Thruston B. Morton (R.-Ky.). Before leaving, Magnuson announced that he favored the Gillilland and Webb reappointments.

SENATOR MORTON then took over what had become "the deserted village," as he put it. This referred only to the bench. The audience was a goodly crowd. It included seven of Webb's colleagues on the Commission. Having no questions for Gillilland, Morton excused the CAB member, saying "I think you're home free."

QUESTIONING OF WEBB took but a few minutes. Morton asked for the record whether the commissioner intended to serve the entire new term ending Dec. 31, 1972, for which he had been reappointed. Webb replied that he did, barring unforeseen developments. The next question asked whether the appointee is a Republican or Democrat. "A Republican," Webb replied. "Hurrah! Hurrah!" exclaimed Morton, a former chairman of the Republican National Committee.

THIS RECORD of political affiliation is required by the Interstate Commerce Act which provides that no more than a majority of the Commission's 11 members shall be affiliated with the same party. Including Webb, the Commission now has five Republicans. And it has its limit of six Democrats.

ENDORSERS OF WEBB include the senators from his home state of Virginia—Harry F. Byrd and A. Willis Robertson, both Democrats. Morton put the Byrd and Robertson letters into the hearing's record after telling Webb he thinks they provide "a pretty good basis for your reappointment."

WEBB had no statement to make. So there came a pause which ended when a member of the Committee's staff whispered to Morton. And the Senator said: "The hearing is adjourned."

Big year seen for transit spending

Increasing federal participation is brightening the picture.

Rising transit expenditures are adding sizzle to the already-hot railway supply market. Increased transit spending in New York, Chicago, Washington, D.C., Boston, Cleveland and other cities can be predicted from budgets already completed and from budgets currently being prepared.

Last week, for example, New York City Transit Authority submitted a record budget request to city officials. NYCTA asked for $161.8 million to modernize equipment and facilities during its next fiscal year. At the same time, NYCTA submitted a $398.3-million, five-year modernization and rehabilitation plan. NYCTA has also asked the federal government to help it buy 400 new subway cars costing an estimated $46.8 million.

Spending will be up sharply in San Francisco in 1966 as engineering and construction work on the Bay Area Rapid Transit lines picks up. BART's schedules show construction now under way on all lines except Hayward-Fremont, Twin Peaks and Oakland-Daly City. Oakland-Daly City construction is scheduled to start in 1966. The other two lines have engineering designs and right-of-way acquisition work that needs completing before construction starts in 1967 and in 1969.

A Chicago Transit Authority spokesman said that while CTA is still developing its 1966 budget for presentation to the CTA board in November, it is bound to be up from this year's.

Transit expenditures are rising in other cities, too. The Washington, D. C., rail rapid-transit system (to cost $431 million), the $14-million extension of Cleveland's rapid-transit system (RA, July 5, p. 32), and the expenditures estimated at close to $60 million in the works at Boston (RA, Oct. 4, p. 20) will add substantially to railway supplier sales next year.

• **Impetus from Washington.** Increasing government involvement in mass transportation is helping to accelerate the trend. This involvement goes beyond the recently-enacted High Speed Ground Transport Act of 1965, which authorizes expenditure of $90 million over the next three years to encourage a return to surface mass-transport in such densely-populated corridors as that which has developed between Boston and Washington. Under last year's Mass Transportation Act, there is provision for aid on the urban level. In its recent application for federal aid in acquiring new subway cars, NYCTA explained why it feels there is justification for this federal participation.

• **Hard pressed for money.** The Authority, which expects to have a large operating deficit this year, says the City of New York has long recognized the importance of its transit system and has invested heavily in construction and improvements. However, it adds that "it has strained its financial resources to the utmost in this effort, and now seeks federal aid, confident that the new rapid transit cars sought in this project are essential for the sound, economic and desirable maintenance and development of transportation in this area."

16 million people affected

In its application, the Authority noted that the New York City rapid transit system "is the key to the entire transportation system" of the New York metropolitan region. Each day, NYCTA directly serves most of the 8 million residents of the city, and indirectly the 8 million people who live outside of the city.

"Without the New York City Transit System," the Authority said, "the concentration of commercial, industrial, cultural and social activities that are the reason for the existence of the city and region would cease to exist. Without it neither the millions of residents of the city, nor the hundreds of thousands of daily commuters coming in could move about the city."

• **Old cars being retired.** The Authority is anxious to step up its new car purchasing program so that it can take out of service cars in the fleet that are over 35 years old.

After the delivery of 200 cars presently on order, NYCTA will have 1,050 old BMT and IND subway cars, and 140 old, lighter-weight cars used in elevated service. The old subway cars range in age from 43 to 34 years, and the elevated cars from 61 years to 28 years in age.

Present plans call for the replacement of the 800 cars acquired for the IND lines from 1930 to 1933 in the period from 1965 to 1968.

"All plans for the improvement of mass transportation facilities in this region," the Authority told the federal agency, "include the replacement of old rolling stock with new. It is a key feature of many of the plans and proposals for future improvement of rail commuter lines, and was one of the first steps taken by the State of New York in its program to aid the commuter railroads serving New York City."

Modernization essential

The Authority said that if its system is to continue to function efficiently and economically, "plant and equipment must be replaced and renewed regularly. This project is an essential part of such renewal." Good equipment and good service, it said, would encourage greater patronage, especially in off-peak periods.

"Another benefit of this project," the Authority emphasized, "will be the release of capital monies of the City of New York for other transit improvements."

"The City is faced with many urgent requirements for capital funds which have long exceeded the amounts available, and federal assistance is needed," the Authority added. It noted that since 1953, $461,977,400 worth of new cars have been ordered for the rapid transit system and that between July 1, 1953 and Dec. 31, 1965, $987,925,400 had been spent for improvements in the rapid transit system.

It is estimated that the 400 new cars could be manufactured for $113,500 each and that engineering, inspection and costs of preparing the cars for service would be $2,250 a car, bringing the total cost of each car to $115,750 a car.

The scrap value of the 400 cars to be replaced, estimated at $360,000, would be credited to the project.

The cars would be bought through competitive bidding in accordance with the established procedures and legal requirements governing purchases by the City of New York, to which the cars would belong.

• **Holding the line on fares?** The mounting deficits, NYCTA commissioners said last week, leave little hope of saving the city's present 15-cent fare.

New York City's Mayor Robert Wagner has appointed a special committee to study the fare problem; a report is due in February. ■

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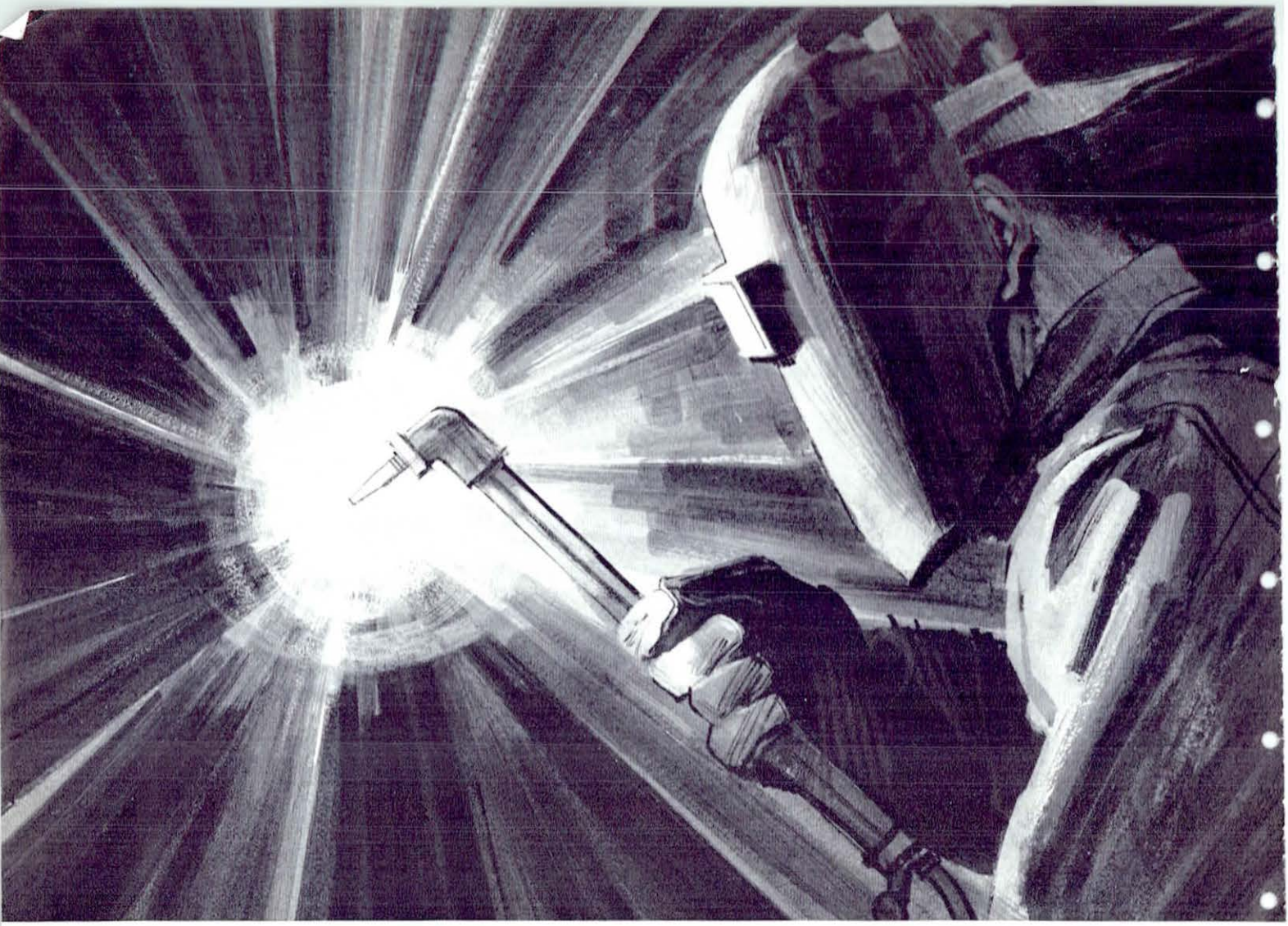

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MARKET OUTLOOK

Carloadings

Loadings of revenue freight in the week ended Oct. 2 totaled 603,093 cars, the Association of American Railroads announced on Oct. 7. This was an increase of 17,964 cars, or 3.1%, compared with the previous week; a decrease of 8,136 cars, or 1.3%, compared with the corresponding week last year; and a decrease of 29,023 cars, or 4.6%, compared with the equivalent 1963 week. Ton-miles generated by carloadings in the week ended Oct. 2 are estimated at 14.1 billion, an increase of 4.4% above the corresponding week of 1964, and 4.1% above the 1963 week.

REVENUE FREIGHT CARLOADINGS
For the week ended Saturday, Oct. 2

District	1965	1964	1963
Eastern, including Allegheny and Pocahontas ..	242,885	238,651	243,967
Southern	116,254	113,621	119,438
Total Eastern and Southern Districts	359,139	352,272	363,405
Northwestern .	84,190	95,375	98,537
Central Western	119,509	124,668	127,801
Southwestern .	40,255	38,914	42,373
Total Western Districts	243,954	258,957	268,711
Total All Roads	603,093	611,229	632,116
Commodities:			
Grain and Grain products	52,543	56,052	64,651
Livestock	4,175	5,021	4,544
Coal	119,641	112,505	119,003
Coke	7,580	9,026	6,666
Forest Products	39,055	38,664	38,500
Ore	45,682	52,041	49,533
Merchandise l.c.l.	8,433	12,472	16,804
Miscellaneous .	325,984	325,448	332,515
Oct. 2	603,093	611,229	632,116
Sept. 25	585,129	615,152	621,612
Sept. 18	589,717	624,033	596,504
Sept. 11	516,840	523,891	594,002
Sept. 4	599,879	603,516	496,822
Cumulative total, 40 weeks ...	22,513,276	22,065,156	22,154,677
Estimated revenue ton-miles (billions) 40 weeks	527.2	502.0	475.0

PIGGYBACK CARLOADINGS.—U. S. piggyback loadings for the week ended Sept. 25 totaled 21,927 cars, compared with 19,731 for the corresponding 1964 week. Loadings for 1965 up to Sept. 25 totaled 755,869 cars, compared with 657,419 for the corresponding period of 1964.

IN CANADA.—Carloadings for the seven-day period ended Sept. 21 totaled 87,262 cars, compared with 86,570 for the previous seven-day period, according to the Dominion Bureau of Statistics.

	Revenue Cars Loaded	Total Cars Rec'd from Connections
Totals for Canada		
Sept. 21, 1965	87,262	23,539
Sept. 21, 1964	82,784	21,319
Cumulative Totals		
Sept. 21, 1965	2,805,433	899,687
Sept. 21, 1964	2,819,344	888,238

FREIGHT-TRAIN CARS

► *Burlington.*—Will spend approximately $29.1 million in 1966 for 2,050 new freight cars to be built by company shops and contract carbuilders. The program may later be expanded if need develops. Present plans call for acquisition of 400 covered hopper cars with trough hatches; 200 open-top hopper cars; 500 high-capacity covered hopper cars for grain service; 50 100-ton Airslide covered hopper cars; 400 70-ton box cars with 14-ft door openings and grain-access doors; 100 100-ton covered gondolas equipped with hydraulic cushioning and removable roof sections; 100 70-ton bulkhead flat cars; 100 60-ft, 100-ton box cars with 16-ft sliding doors and hydraulic cushioning; and 200 60-ft, 70-ton flat cars with chain tie-down devices. All cars will be equipped with roller-bearing trucks.

► *Missouri Pacific.*—Ordered 200 bulkhead flat cars of 90-ton capacity from General Steel Industries at a cost of about $4.3 million. The 60-ft cars, to be used for hauling flatboard, lumber, pipe and other products, will have cast-steel underframes and interlocking upright ends. They will be built at Granite City, with delivery scheduled to begin in the second quarter of 1966.

► *Norfolk & Western.*—Is seeking bids on 110 60-ft auto-parts box cars, 74 tri-level racks for installation on flat cars to be used in new-auto-transport service, and other special equipment. Total cost is estimated at $3.25 million.

NEW FACILITIES

► *Boston & Maine.*—Ordered Type K2 CTC equipment from General Railway Signal to expand an existing installation between the New Hampshire points of Dover E. and Dover W. and Exeter.

► *Norfolk & Western.*—Ordered two sets of Wheel Thermo-Scanner Units from General Railway Signal.

► *Pennsylvania.*—Will spend $1.1 million over the next several months to expand facilities at four yards. At Detroit, a new auto loading facility will be added, plus two loading ramps; loading areas will be paved and floodlighted. At Hagerstown, Md., PRR will pave a 5¼-acre storage area and install a new unloading ramp and extensive floodlighting. The third project is expansion of the Shiremanstown Yard near Harrisburg, where five new tracks and supporting facilities costing $685,000 will increase yard capacity from 370 to 600 cars. Completion of this work will permit retirement of an existing yard at Lemoyne and release almost 12 acres of land for industrial development. At the Aramingo TrucTrain terminal in northeast Philadelphia, PRR will pave additional parking space for trailers and make other improvements.

► *Southern.*—General Railway Signal is supplying 110 sets of intermittent inductive train-control equipment to EMD for installation on locomotives ordered by the Southern.

► *Louisville & Nashville.*—Ordered one 200-ton wrecker from Orton Crane & Shovel.

LOCOMOTIVES

► *Burlington.*—Will acquire 28 diesel-electric units in 1966 as part of a $35-million equipment program. Sixteen units will be road locomotives for high-speed freight service, 12 will be switching units.

YOU OUGHT TO KNOW

War freight always gets cars: President Daniel P. Loomis of the AAR said last week that Rep. Floyd Hicks (D.—Wash.) was "not correct" in saying that "ammunition destined to Viet Nam has been delayed because of the scarcity of freight cars." There is "not a single instance" of any such delay, Loomis added, quoting statements praising railroad performance which have come from Gen. J. J. Lane, commander of the Military Traffic Management and Terminal Service. Hicks made his statement at House Commerce Committee hearings on several bills (including the Senate-passed S.1098) which propose to give the ICC power to include incentive factors in the per-diem rate for rental of freight cars. Because railroads disagree as to the proposed legislation, there was no AAR presentation at the hearings. Representatives of the differing railroad groups were heard.

AAPTO elects new president: Ross E. Chappell, Santa Fe's general passenger traffic manager, has been elected president of the American Association of Passenger Traffic Officers; John B. Dorrance, Jr., general manager passenger sales, Pennsylvania, named vice president, and William F. Burke, general passenger traffic manager for Burlington, elected chairman of the executive committee. R. C. Buckingham, passenger traffic manager, Pullman Co., was re-elected treasurer.

New WP&Y ship on its way: The White Pass & Yukon's new $8-million container operation is expected to be a going thing well before the end of 1965. The route's new container ship, built in Montreal, is on its way to Vancouver via the Panama Canal, with arrival scheduled for mid-October. After inspections and sea trials, the vessel will be phased into service and WP&Y figures the official inaugural run will take place late in November. In addition to the ship, the route's container program includes improvement of terminal facilities and acquisition of container-handling equipment and a number of new 8x8x25¼-ft containers.

Safety report: Two railroad passengers were killed and 136 were injured in train and train-service accidents in July, compared with one fatality and 122 injuries in July 1964, reports the ICC's Bureau of Railroad Safety and Service. In this year's first seven months there were six passenger fatalities and 684 injuries; in the comparable 1964 period there were two fatalities and 851 injuries.

Safety records cited: Six Class I railroads have been named by the National Safety Council as group winners of its 1965 Railroad Employees' National Safety Award. On NSC's list are Union Pacific; Chicago & North Western; Elgin, Joliet & Eastern; Duluth, Missabe & Iron Range; Northwestern Pacific; and Quanah, Acme & Pacific. NSC also cited two Pullman Company operations and two switching and terminal lines, Indiana Harbor Belt and Cleveland Union Terminal.

Railweight in miniature: The Railweight system for weighing freight cars coupled and in motion has been refined to a point where scale length can be cut to five feet (from 12½ feet in the standard Railweight model introduced several years ago). The short scale weighs one axle at a time. According to the developer, International Railroads' Weighing Corp., "a solid-state electronic recorder takes electric signals, representing the weight of the axle, from electronic strain gauges in the scale. Then it filters out vibrations and averages readings taken at a rate of up to 250,000 per second. It then adds all axles of the car together and prints out the total weight on a paper tape."

National post to N&W's Hedley: The 97th national president of the 113-year-old American Society of Civil Engineers is a railroader—William J. Hedley, assistant vice president of the Norfolk & Western. Hedley will take office at the 55,000-member society's annual meeting in Kansas City Oct. 20.

Truck tonnage: Intercity truck tonnage in the week ended Sept. 25 was 0.8% above that of the preceding week, and 2.3% over volume of the corresponding week of 1964, according to American Trucking Associations.

Current statistics

Net Income	
6 mos., 1965	$335,000,000
6 mos., 1964	330,000,000
Carloadings, revenue freight	
40 wks., 1965	22,513,276
40 wks., 1964	22,065,156
Freight cars on order	
Sept. 1, 1965	40,737
Sept. 1, 1964	29,574
Freight cars delivered	
8 mos., 1965	48,524
8 mos., 1964	47,126
Servictable cars	
Sept. 1, 1965	1,402,904
Sept. 1, 1964	1,408,778

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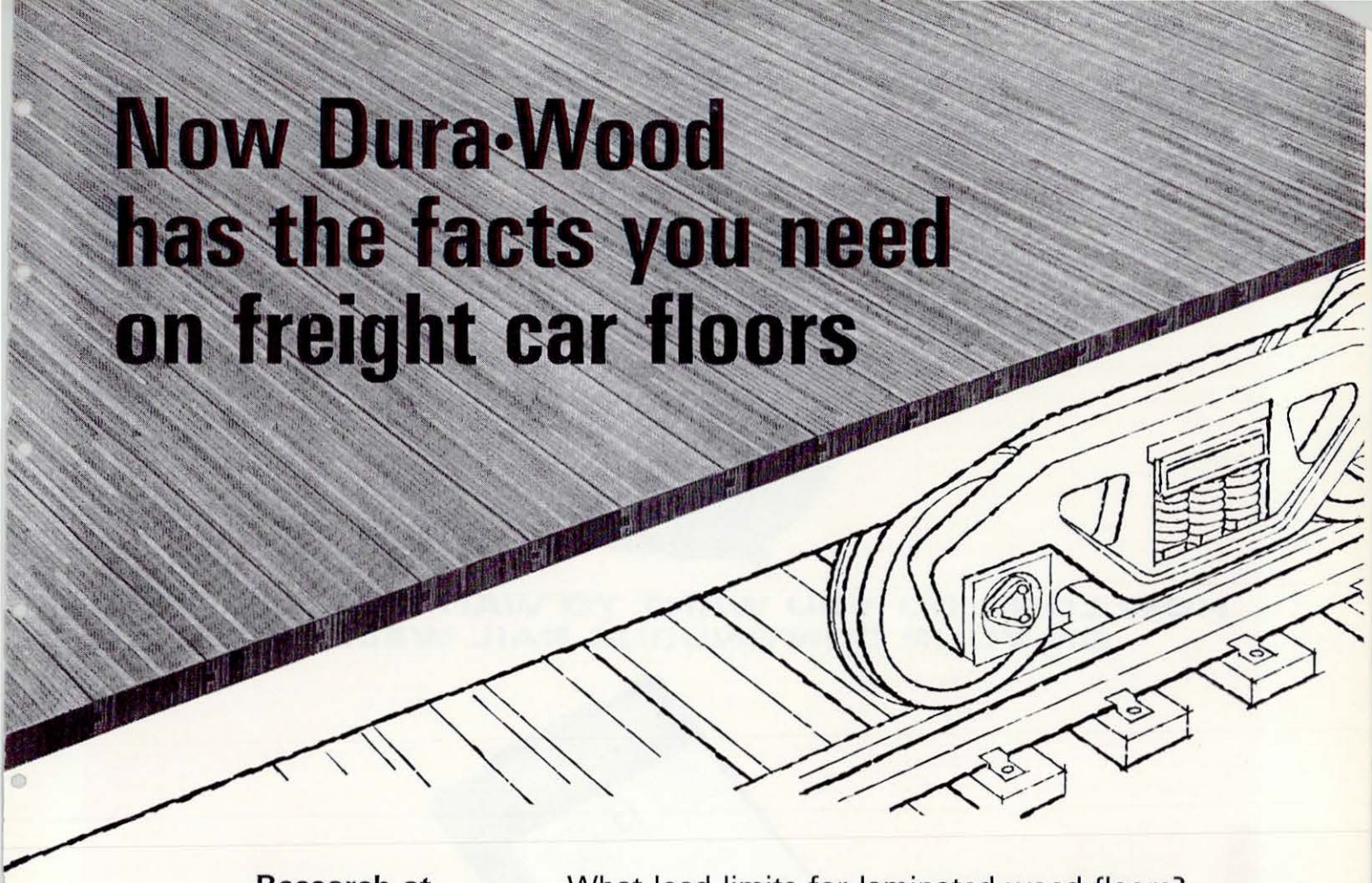

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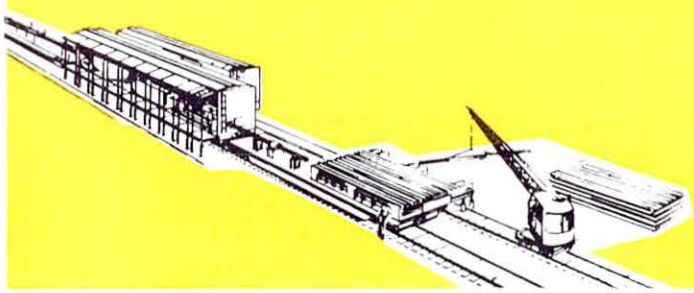

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THE ACTION PAGE

Needed: an 'era of good feelings'

A lot of us, in and around the railroad industry, have been more than pleased to see the railroads able to raise their capital expenditures to a record $1.4 billion last year; and to a probable $1.6 billion in 1965. But such totals, encouraging as they are, are not nearly enough—considering the magnitude of the industry, and the need of even the more prosperous roads for modernization at an accelerated pace.

The magnitude of capital expenditures—and the outlook for their continuance at high levels in the coming year—is surveyed in other pages of this issue. The height they attain is the best measure there can be of the health of the railroads—alike from the standpoint of the railroads themselves, their patrons, their suppliers, and their employees. And the principal factor controlling these expenditures, upward or downward, is the return the railroads are able to earn on their investment.

In 1964 the rate of return was 3.14%. In 1965 it is currently being estimated at only a little more—perhaps 3.5% at most. Such returns are about half those being earned by the electric power companies, and about one-fourth the average for manufacturing industries. The CAB recently announced that domestic airlines were earning around 10% on their investment—which ratio the CAB believes to be just about right.

There are many devices other than "cash on the barrelhead" which railroads can use to obtain improved equipment—such devices, for instance, as leasing instead of buying. Tax allowances for earnings spent for improvements have helped. But no industry can keep itself dependably and competitively modernized when it persistently earns for investors only a fraction of the rate of return that other industries do. Investors prefer to put their savings into businesses with a high rate of return—and concerns with low earnings have to exercise maximum ingenuity in their effort to keep their service attractive to customers.

No such problem

The railroads' competitors (by highway, waterway and air) have no comparable problem of keeping modern, because so large a part of their capital expenditures is made by government in their behalf.

We can all be happy that the railroads were able to spend $1.4 billion on capital improvements in 1964 and expect to make outlays of $1.6 billion this year. But there is no reason for complacency in these totals because, for railroads to be as successfully competitive as their potentialities permit, their expenditures to improve their equipment and service would not be excessive if they were proceeding at twice the current rate.

The October issue of Reader's Digest magazine has an article entitled "The Railroads Are Fighting Back," which reports that "this crucially important industry seems to be on the comeback trail." Such statements are true—and the innovations the Digest mentions (which are well known to Railway Age readers) are given major credit for the carriers' accomplishments. But the article closes with the warning: "Yellow Light Ahead," and it lists three obstacles to railroad prosperity which have been by no means overcome. One of these is "outmoded antimonopoly regulations" of railroads but not of their competitors.

The other two handicaps listed are "antiquated labor contracts" and an overbuilt plant. Unless these three problems are solved, the article concludes that the railroads' future is "up in the air."

Few railroad people would question these conclusions. But how surmount the three formidable barriers to dependable railroad prosperity? There is a period in American history which, perhaps, suggests an answer. It is called the "era of good feelings" and occurred for about ten years beginning around 1815. For a few years sectional and party disagreements were moderate. There was widespread support for a protective tariff (you vote to protect my industry and I'll vote to protect yours). Most states favored "internal improvements" (roads and canals). The "good feeling" did not endure for long, but produced constructive results while it lasted.

What if all agreed?

Suppose all interests around the railroads—shippers, managements, unions, suppliers—could agree on policies that would increase railroad traffic and earnings, and would support these policies simultaneously. Some unionists might be suspicious of the other groups—but how could railroad employment fail to respond to a substantial increase in traffic, brought about by improved service with moderate rates?

In the early days of railroading, there were plenty of instances where rival companies resorted to physical force in their contests with each other. These intercompany quarrels closely resembled scenes of violence that occasionally broke out later in union-management controversies. But the companies gave up physical force as a means of settling their differences—now they are settled by regulatory authorities and the courts, if the contending parties do not reach voluntary agreement, as they usually do. In sum, fighting among groups which have interests in common is seldom profitable.

And whatever degree of agreement the various interests in and around the railroads can achieve on policies which will reduce regulatory restraints, minimize wasteful employment, and curtail superfluous facilities—will benefit all these interests. In their degree of cooperation to achieve these goals may be found the answer to the question: whether or not the railroads are really on the "comeback trail" or not.

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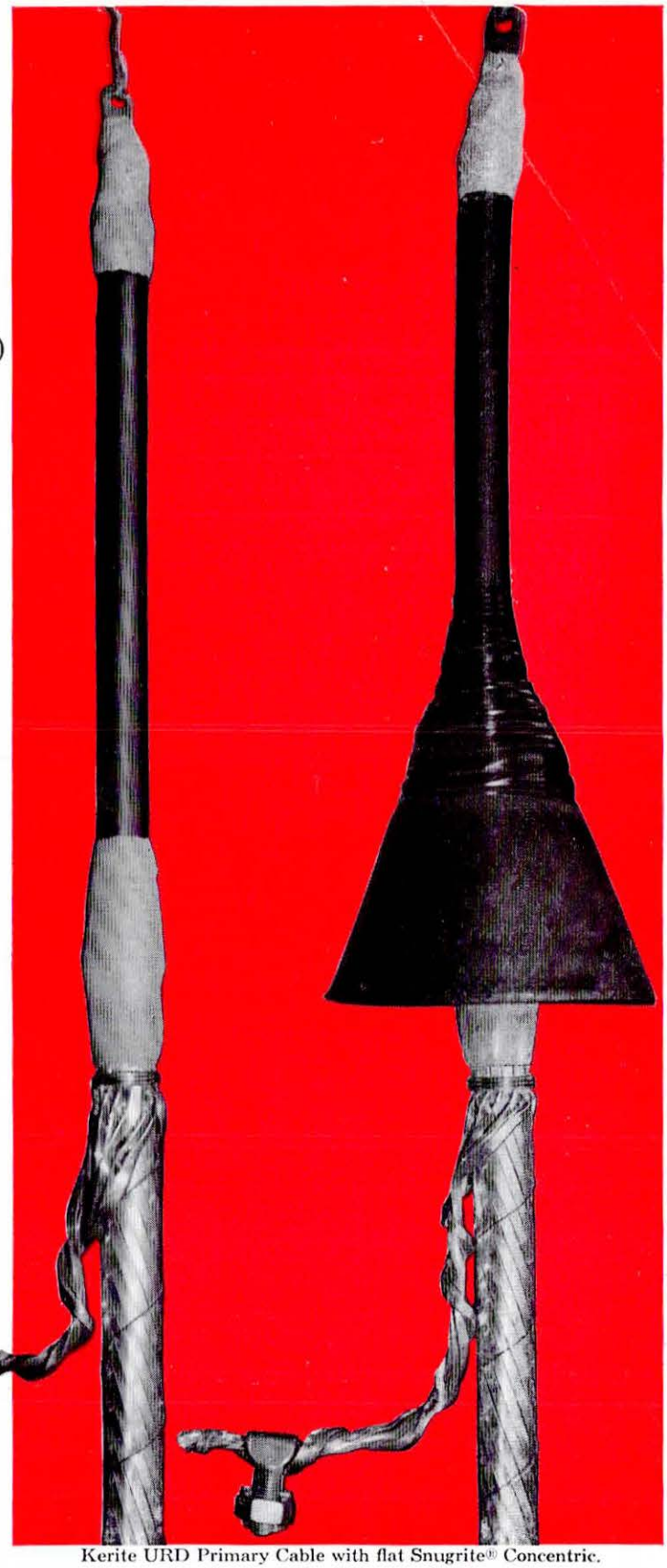

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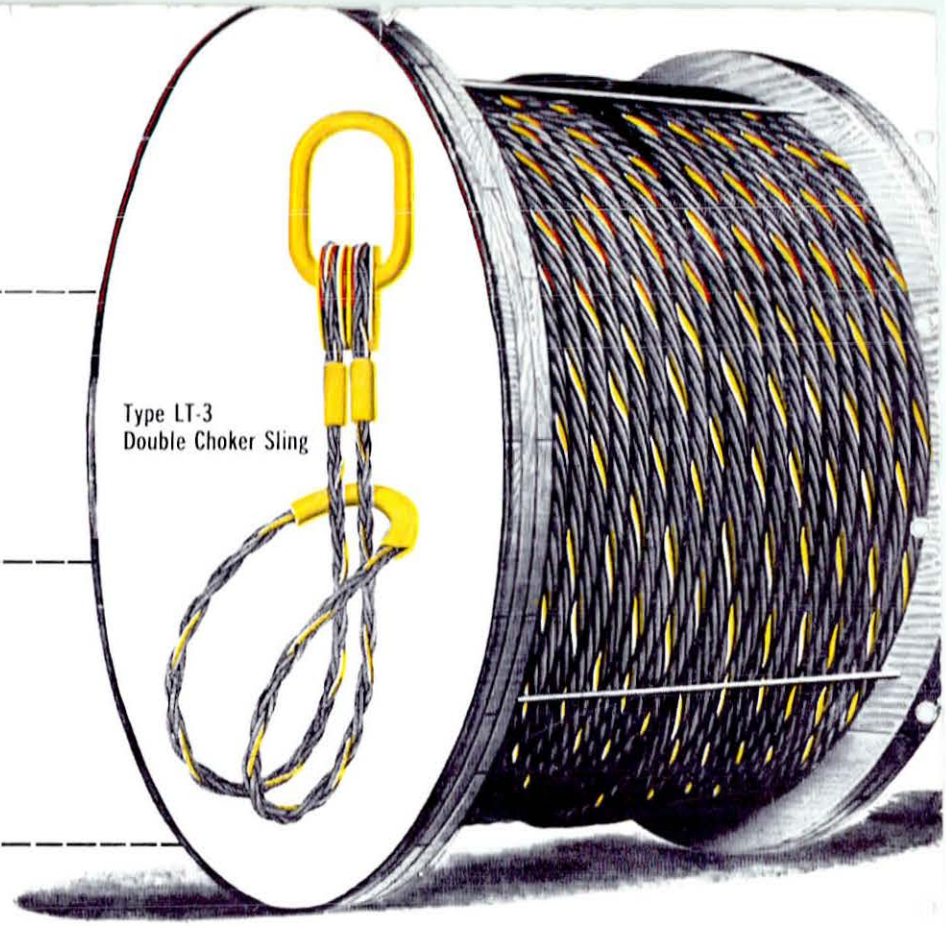

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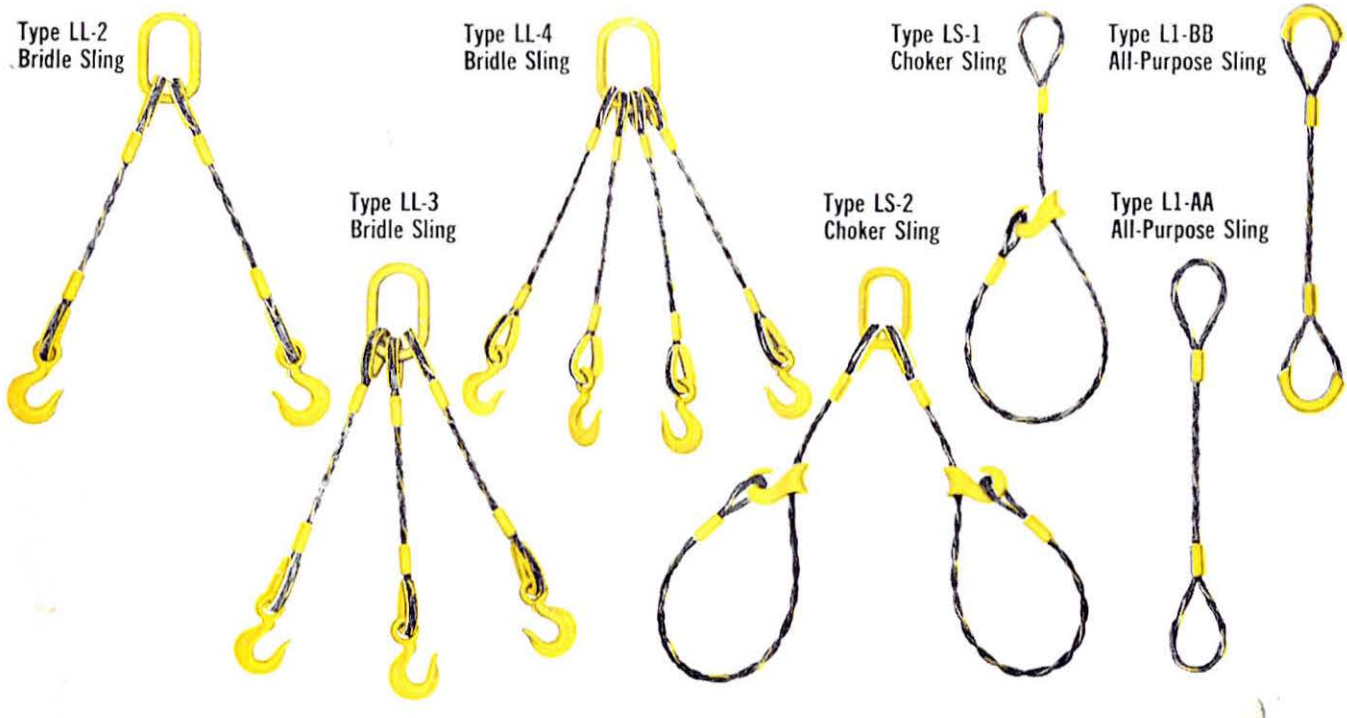

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